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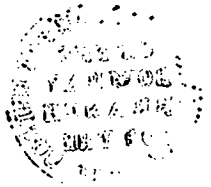

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OUR RAILWAYS.

SKETCHES HISTORICAL AND DESCRIPTIVE,
WITH PRACTICAL INFORMATION
AS TO FARES AND RATES, ETC., AND
A CHAPTER ON RAILWAY REFORM.

By JOSEPH PARSLOE.

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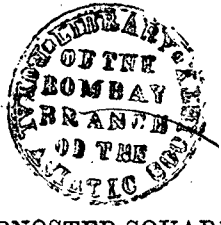
"Whatever facilitates or cheapens the interchange of commodities or services—good roads, the locomotive, the steam ship, or the telegraph—promotes abundance, and consequently the aggregate of human comfort and happiness."



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SAMPSON SAMUEL LLOYD, Esq., M.P.,

PRESIDENT OF

THE ASSOCIATION OF CHAMBERS OF COMMERCE OF THE UNITED KINGDOM.

The Chambers of Commerce established in different parts of the country, and fairly representing all branches of our national industry, have, amongst the performance of other important functions, taken a prominent position in discussing numerous railway questions, especially those directly affecting commercial interests, and have at the same time materially assisted in bringing before Parliament sound public views of the same.

INTRODUCTION.

One of the most important factors in connection with the successful conduct of the trade and commerce of any country is, and must be, the amount of facility possessed for the transport of passengers and merchandise. The cost of conveyance and the time occupied in transit constitute a basis of all business transactions. Any question, therefore, which relates to railways is sure to be of general interest, and no apology, on this account at least, need be offered for the present undertaking.

In the following pages there has been no attempt to perform a literary exploit, for such an attempt must inevitably have resulted in failure. The object in view has been to present to the reader, in a concise and popular form, a sketch of the railway system in its general details, and for such a sketch I venture to think there is some public need. Further, as the result of some twenty years' experience in connection with both sides of the question, viz., as

a railway official and as an official in a large commercial establishment, some information is given, particularly with regard to the vexed question of rates and fares, which may be of some practical worth to traders and others.

Some of the matter has already been published in the *Fortnightly Review*, the *New Quarterly Magazine*, and other periodicals, and my thanks are here recorded for the permission very readily granted to republish the same in the present form.

For many interesting historical facts, without which this work would be incomplete, I am indebted to "The Life of Stephenson," by Samuel Smiles, to whom grateful acknowledgments are made for the permission very kindly given in response to my application to be allowed the privilege of making some extracts. Bradshaw's Railway Manual, a wonderfully complete work, has furnished me with important facts of history. Valuable items of information have also been obtained from other sources too numerous to mention.

With a consciousness of many imperfections, I now leave my work to the impartial judgment of those who may do me the honour to give it a perusal.

JOSEPH PARSLOE.

BEDFORD, *April*, 1878.

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OUR RAILWAYS.

CHAPTER I.

THE OLD AND NEW SYSTEM COMPARED.

A HUNDRED years ago a journey from London to York was deemed as great an undertaking as a trip now is from London across the Atlantic to New York. Nowadays even the most timid venture on a long railway journey, but are often quite unaware of the enormous speed at which they are being carried along. To be present at some country station when an express train is passing is sufficient to startle even an accustomed traveller; but the comfort and ease of railway travelling are now so great, that the passenger hardly realizes the fact that the carriage in which he sits is moving along at the rate of fifty or sixty miles an hour. In connection with the old system, the difficulties to be contended with were various and numerous, to say nothing of having to experience occasionally the uncomfortable sensation of an en-

counter with Dick Turpin, or a representative of his class, demanding "your money or your life."

The *British Magazine* for December, 1746, thus describes an adventure of this sort:—"Saturday evening, Dec. 27, the Woodford coach was attacked on Epping Forest by four footpads. There were in the coach four men and a little girl, one of whom had a loaded fowling-piece. The villains having made the coach stand, came all to one door, but the man who owned the piece not being quick enough in delivering, the rogues went round to the other door; on which the man got out, and took the child and fowling-piece, and laying the child on the ground, went and took aim at the fellow and shot him through the breast, the ball coming out of his shoulder, after which he gave such a blow at the second as broke the stock of his piece, and then the villains made off. While the fray lasted the three other men that were in the coach got out and ran away too, leaving the man who fired and the child alone. The rogue who was killed is supposed to be a smith at Stratford, and was exposed to publick view in a barn near the Crown at Layton."

The condition of the roads was not the least difficulty with which the traveller had to contend. During bad weather the state of the highways, even at the present day, in some parts of the country, renders them well-nigh impassable. What then must have been the condition of certain roads a hundred years ago? Sometimes the way led over marshy land. Occasionally it was necessary to go through a watercourse instead of over it. The absence of fences on

the roadside was also a source of danger, especially when the way was white with snow. In some instances a winding track through a dense wood had to be traversed. It was no unusual thing for the highways, for long distances, to be barely wide enough for one carriage only to pass, and the mud was often some feet deep, even in summer time. Mr. Arthur Young, who travelled through Lancashire in 1770, in giving an account of his journey, says:—"Let me caution all travellers who may propose to travel through this terrible country, for a thousand to one they break their necks or limbs by overthrows or breakings down. They will here meet with ruts which I actually measured four feet deep, only from a wet summer."

Early in the present century there was a movement in favour of some improved mode of constructing turnpike roads, and the question was much debated in Parliament. It is generally known that the name of Macadam is associated with improvements in the condition of our highways. It was at all events considered by the legislature that he was a public benefactor, for during a discussion on the subject in the House of Commons, in May, 1825, it was stated that at various times no less than £41,000 had been voted to Mr. Macadam and his sons for their services.

A few words as to the history of coaches may be interesting. The first coach is said to have been made in the year 1555, for Henry Manners, second Earl of Rutland. In 1605 Taylor, the "Water Poet," complains that coaches "have increased with a mischief, and have ruined the trade of the waterman." A

hundred years elapsed before glass windows or complete doors superseded curtains. In Ireland, only a few years ago, vehicles with curtains without doors were common. In 1670 springs were first introduced. Mr. G. A. Thrupp, in his "History of Coaches," has contributed much to this interesting subject.

Those who ventured to take a journey of many miles in the old coach days were looked upon as possessing considerable enterprise. To many such an expedition was quite an event in their lifetime; so much so that it was frequently made the opportunity for the traveller to make his will. To brave the wind, rain, snow, or sun on the outside of a coach for a period of, say, twelve consecutive hours must have been an experience such as we of to-day can scarcely realize. The only alternative was to be stowed away inside a box-like compartment, where the passengers were fixed, so to speak, like glasses in a cruet frame. So many inches were allotted to each person and no more. The opportunity to indulge in a change of position was almost out of the question. And then, as if the passengers had been undergoing an experience of perpetual ease and comfort, the coachman and guard urged their demands for gratuities often at very short intervals. There were also the dangers of the road, for an upset occasionally took place, to the terrible discomfort and alarm of the passengers.

In his well-known book, "The Life of Stephenson," Mr. Smiles relates an experience which the great engineer had in this respect: "Mr. Stephenson had occasion to travel from Ashby-de-la-Zouche to London

by coach; he was an inside passenger with several others, and the outsides were pretty numerous. When within ten miles of Dunstable he felt, from the rolling of the coach, that one of the linch-pins securing the wheels had given way, and that the vehicle must upset. He endeavoured so to fix himself in the seat, holding on firmly by the arm-straps on either side, that he might save himself on whichever side the coach fell. The coach soon toppled over, and fell crash upon its side, amidst the shrieks of his fellow-passengers and the smashing of glass. He immediately pulled himself up by the arm-strap above him, let down the coach window, and climbed out into the road. The coachman and passengers lay scattered about, stunned, and some of them bleeding, whilst the horses were plunging in their harness. Taking out his pocket-knife, he at once cut the traces and set the horses free. The guard had his arm broken, and the driver was seriously cut and contused. A scream from one of his fellow-passenger 'insides' here attracted his attention; it proceeded from an elderly lady, whom he had before observed to be decorated with one of the enormous bonnets in fashion at the time. Opening the coach door, he lifted the lady out, and her principal lamentation was that her large bonnet had been crushed beyond remedy."

The expense and slowness of travelling were also great impediments in the way of would-be travellers. For example, the mail fares from London to Birmingham were fifty shillings each passenger inside, and thirty-five shillings each outside; by the ordinary

coach, forty-five shillings inside, and thirty shillings outside, exclusive of fees to coachmen and guards, varying from five shillings to seven and sixpence. Compared with these charges, the first-class railway fare is now seventeen and fourpence, and the third class nine and fivepence, including cushioned seats and foot-warmers when necessary. By an express train the journey may be accomplished in three hours, whereas the time occupied on the road by the fastest coaches was the whole of one day or night. In the *Quarterly Review* for November, 1877, it is stated that the time occupied by the mail coach in travelling from London to Bristol, 122 miles, was 11 hours 45 minutes, with 13 changes; London to Manchester, 187 miles, in 19 hours, with 20 changes. Notwithstanding all these difficulties, we of the present day can quite conceive that there was a certain charm about travelling by coach; for while there were "perils of the road," there were also "pleasures of the road." Many of our time can recall with lively interest the delights of the old coach times, so closely associated with what we have learned to term "the good old days."

There must have been a romance and enjoyment in a coach drive on a fine summer's day through some of our grand village scenery, quite unassociated with much of our railway travelling. Then, the coachman was an institution in himself—a jovial fellow, with an abundant supply of all the news of the day, and always ready to let the passengers have the full benefit of his knowledge.

Who has not read with intense pleasure the charm-

ing story in "Tom Brown's School Days," of Tom's journey by the Tally-ho from the Peacock Inn, Islington, to Rugby, and has not felt a desire for the opportunity of undertaking such a trip, notwithstanding the existence of express trains which accomplish the journey in about two hours? The attractions of the road are now much sought after, as testified by the establishment of coaches, especially during the summer season; those, for example, which run from London to Oxford, Brighton, Tunbridge Wells, St. Albans, etc. And who would not like to avail himself of one of these trips as a day's enjoyable outing?

In the old days class distinctions were even more marked than they are at the present time, and in connection with travelling this was almost inevitable. For the rich there were the private carriage and post-chaise. The country gentleman used the mail coach; the ordinary stage coach was used by tradesmen. For the poor there were waggons, upon which the carts of our village carriers are a very great improvement. Railways have had a levelling tendency, and the poor are enabled to travel at the same speed, if not with the same ease, as the rich.

Although the railway system has been in existence such a few years comparatively, the ease with which we are enabled to travel is so great, and the expense so small, that it has come to be looked upon as little more than commonplace. If, however, our ancestors could have been presented with a prophetic history foretelling the wonders of the nineteenth century, perhaps nothing would have more surprised them

than our extraordinary facilities for travelling. Indeed, it seems, on consideration, no less than a wonder to the most thoughtful and observant amongst us that a work so great could have been carried out and brought to its present state in such a short time.

CHAPTER II.

ORIGIN—COMMENCEMENT—OPPOSITION—DEVELOPMENT.

THE story of the origin and commencement of the railway system, the opposition to its extension, and its subsequent rapid development, has so often been told, both in books and periodicals, that it is not necessary to occupy a very lengthened space with this portion of the subject.

Railways may be said to have had their origin in the coal districts of the North of England, where, at an early period, rails of wood or iron were laid down as a readier means of moving the trucks to and from the pit's mouth. For this purpose wooden tramroads were in existence in the neighbourhood of Newcastle-on-Tyne nearly two centuries and a half ago, and the system gradually extended in the mining districts.

The next step in advancement was the introduction of cast iron rails, which appear to have been first used about the year 1740. At the Coalbrookdale Iron Works, Shropshire, in 1767, cast iron rails were made as an experiment, and shortly afterwards used

for the purpose of a tramway. "In 1800" (says Mr. Smiles in his "Life of Stephenson") "Mr. Benjamin Outram, of Little Eaton, Derbyshire, used stone props instead of timber for supporting the ends and joinings of the rails. As this plan was generally adopted, the roads became known as 'Outram roads,' and subsequently, for brevity's sake, 'tramroads.'"

The advantage of these tramways was now being greatly felt, and their introduction was rapidly extended. As, however, they did not reach far beyond the mining districts, the benefit derived was but limited. Soon after the dawn of the nineteenth century an onward movement set in, for it was found that the existing means for the conveyance of passengers and merchandise were quite inadequate to meet the requirements of the times. When it is stated that goods had been conveyed from New York to Liverpool in less time than from Liverpool to Manchester, it will be seen how needful it was that a great reform should be brought about. Then there was the very important question of the cost of carriage.

Many proposals were made by eminent men as to the best means to be adopted, but there were enormous difficulties to be dealt with, not the least being the amount of prejudice which existed against the introduction of any new schemes. James Watt and others had for years been engaged in their grand work of preparing the way for the use of the steam engine. The idea that steam should be the new power to be employed was, however, looked upon as monstrous.

An amusing incident is recorded in connection with an experimental steam engine invented by a Mr. Murdock. One dark night in the year 1784, Murdock thought he would test the powers of his locomotive; and, to conduct his trial in solitude, he resorted to a secluded lane leading to the church at Redruth, in Cornwall. Steam was got up, and the engine very soon started off at a good speed, possibly to the amazement of the inventor. The clergyman of Redruth happened to be passing at the time, when the strange hissing noise made by the engine, and its indescribable appearance in the darkness, so horrified the good pastor that he was bound to cry loudly for assistance. He declared that he had really seen some messenger from the Evil One, and was not satisfied until Mr. Murdock had explained the nature of the remarkable machine he had seen in the act of approaching him with such rapidity.

In the year 1802, Richard Trevethick, a pupil of the above-named William Murdock, and from whom doubtless he received some inspiration, took out a patent for a steam carriage, which had the appearance of an ordinary stage coach on four wheels. Other inventors, such as Mr. Gray (who in 1820 published a work in which he described his proposed "general iron railway, or land steam conveyance"), were in the field of enterprise, and received at the hands of the public little but ridicule for their pains.

The demand for more adequate, less expensive, and more expeditious means of transit continued to grow increasingly urgent. After a vast amount of

agitation, at length the crisis came, the autumn of 1825 having witnessed the inauguration of our railway system in the opening of the Stockton and Darlington line. The first railway time table thus announced the times of starting, etc. :—

STOCKTON AND DARLINGTON RAILWAY.

The Company's coach, called the "Experiment," which commenced travelling on Monday, the 10th of October, 1825, will continue to run from *Darlington to Stockton*, and from *Stockton to Darlington*, every day (Sundays excepted), setting off from the depôt at each place, at the time specified as under, viz. :—

On Monday.—From Stockton at half-past 7 in the morning, and will reach Darlington about half-past 9. The coach will set off from the latter place on its return at 3 o'clock in the afternoon, and reach Stockton about 5.

Tuesday.—From Stockton at 3 in the afternoon, and will reach Darlington about 5.

On the following days, viz., *Wednesday, Thursday, and Friday*—From Darlington at half-past 7 in the morning, and will reach Stockton about half-past 9. The coach will set off from the latter place on its return at 3 in the afternoon, and reach Darlington about 5.

Saturday.—From Darlington at 1 in the afternoon, and will reach Stockton about 3.

Passengers to pay 1*s.* each, and will be allowed a package of not exceeding 14 lbs. ; all above that weight to pay at the rate of 2*d.* per stone extra. Carriage of small parcels, 3*d.* each. The Company will not be accountable for parcels of above £5 value, unless paid for as such.

Mr. Richard Pickersgill, at his office in Commercial Street, Darlington, and Mr. Tully, at Stockton, will for the present receive any parcels and book passengers.

As is well known, the first engine, "No. 1," used upon this line was built by George Stephenson and Co., Newcastle. On the occasion of the opening ceremony Mr. Stephenson was himself the engine-driver. The

engine had attached to it thirty-eight vehicles, and, said a local newspaper of the time, "the engine started off with this immense train of carriages; and such was its velocity that in some parts the speed was frequently twelve miles an hour." The success of this line exceeded the most sanguine expectations, and it was soon proposed to construct a railway from Manchester to Liverpool. The scheme was strenuously opposed, and, owing to the opposition manifested by the farmers and keepers of Lords Derby and Sefton, the survey of the intended line could only be carried out with the greatest difficulty. After buying off opposition, and dealing with it in sundry other ways, the line was constructed and opened in 1830.

The first engine used on this line was the "Rocket," by George Stephenson, which is now exhibited at the South Kensington Museum. The first year after the opening of the Manchester and Liverpool line, 500,000 passengers were conveyed.

A good commencement had now been made, but the extension of the system had to be carried on in the face of the most surprising opposition, both on the part of eminent engineers as well as the public press. Pamphlets were written in which it was stated that railways would prevent cows grazing and hens laying, the poisoned air from the locomotive would kill the birds as they flew over the trains, and render the preservation of pheasants and foxes no longer possible; householders along the projected line were told that their houses would be burnt up by the fire from the engines; travelling by railway would be highly

dangerous, country inns would be ruined, and boilers would burst and blow the passengers to atoms. These and many similar extravagant predictions were made use of; but the history of the opposition to railways has so often been given in publications of different kinds, that it is hardly necessary to say more on the subject than to give the following extracts from the *Quarterly Review*, as showing the spirit of opposition which then existed. This review said: "As to those persons who speculate on making railways general throughout the kingdom, we deem them and their visionary schemes unworthy of notice." With regard to a scheme for laying down a railway between the metropolis and Woolwich, upon which it was considered that twice the velocity of coaches might be attained, the same paper remarked, "We should as soon expect the people of Woolwich to suffer themselves to be fired off upon one of Congreve's ricochet rockets as trust themselves to the mercy of such a machine going at such a rate."

The opposition thus manifested had not the effect of deterring to any considerable extent the development of our railways. Branches were made from the Liverpool and Manchester main line to Warrington and Bolton. Later, Birmingham was connected with Warrington. Then, in 1830, came a proposal to make a line from Birmingham to London. It was only after three years of continued agitation that the consent of Parliament was obtained. The first sod was cut on June 1, 1834, at Chalk Farm, and the railway was opened in September, 1838. One of the engineers

of this railway prepared an elaborate estimate of the enormous amount of work which was executed in this undertaking. Taking the Great Pyramid of Egypt as a comparison, he remarks, "Making the necessary allowance for the foundation, galleries, etc., and reducing the whole to one uniform denomination, it will be found that the labour expended on the Great Pyramid was equivalent to lifting 15,733,000,000 cubic feet of stone one foot high. This labour was performed, according to Diodorus Siculus, by 300,000 men; according to Herodotus, by 100,000 men; and it required for its execution twenty years. If we reduce in the same manner to one common denomination the labour expended in constructing the London and Birmingham Railway, the result is 25,000,000,000 cubic feet of material (reduced to the same weight as that used in constructing the Pyramid) lifted one foot high, or 9,267,000,000 cubic feet more than were lifted one foot high in the construction of the Pyramid; yet this immense undertaking has been performed by about 20,000 men in less than five years."

This was the first railway to be connected with the metropolis, and it will be interesting to note that, in the first instance, trains were worked between Euston Square and Camden Town (there being a steep incline) by means of stationary engines and ropes. The machinery consisted of 10,000 feet of rope six inches in circumference, and two engines, the total cost of which was £25,000. Trains to Euston Square were disconnected from the engines at Camden, and then ran down the incline by gravity, with a good supply

of brake power as a regulator. This plan remained in use until 1844.

Railway enterprise was now an established fact, and new propositions for development were constantly brought forward. Rapid progress was being made, and the Board of Trade, in its report for 1843, gave the number of passengers as 24,000,000. In the year 1849 we had 6031 miles of line, the passengers numbered 63,843,539, and the receipts amounted to £11,806,498. In 1869, twenty years after, 15,145 miles were in existence, the number of passengers reached 305,764,285, and the total income £41,075,321. At the end of the year 1876 there were in daily use in Great Britain 16,872 miles of line, an authorized capital of £741,802,527, and a total income of £62,215,775.

It was very fitting that the fiftieth anniversary of the inauguration of railways should be celebrated in a manner worthy of the occasion. The Railway Jubilee held at Darlington on September 27, 1875, was one of the most interesting and remarkable demonstrations of our time. The North Eastern Railway Company contributed toward the expenses of the celebration the magnificent sum of £20,000, and the town of Darlington £1000. On the occasion a bronze statue of Joseph Pease, son of the founder of the Stockton and Darlington Railway, was unveiled; a banquet was held, to which the chairmen and secretaries of all the principal railways in the world were invited; and there was a procession through the town of over 8000 persons. No less than 100,000 persons visited Darling-

ton on the occasion, between 80,000 and 90,000 of whom were brought to the two railway stations. But the most interesting part of the celebration was the exhibition of forty engines representing the history of the locomotive. The centre of attraction was naturally George Stephenson's old "Locomotion," in which steam was got up; it was thus shown in action, much to the edification of the spectators. The cost of this first railway engine was £500. It is of sixteen nominal horse power, and weighs six and a half tons; it ran for twenty-five years on the Stockton and Darlington line, and, as was said on the first occasion of its running, sometimes attained to a speed of no less than twelve miles an hour. Other engines of an ancient type were also shown. Alongside these were exhibited numerous specimens of the most modern goods and passenger engines belonging to various principal companies. Some of these weighed no less than thirty-nine tons, and cost about £3000. Several of the samples of express engines shown were such as travel day after day at a speed of sixty-five to seventy miles an hour. The contrast between the old "Locomotion" and these express engines of the present day was very remarkable; but, let the comparative facilities for construction be taken into consideration, and the palm will be given to the genius of the engineers, such as Stephenson and Rastrick, who under such difficulties succeeded so well.

CHAPTER III.

CONSTRUCTION OF RAILWAYS—GREAT UNDERTAKINGS.

THE commencement of a railway is an undertaking of no ordinary magnitude, and is always looked upon with much interest. After it has been decided to construct a line in a certain district, steps are taken, if it is intended to form a new company, to secure a sufficient number of shareholders to carry out the project. Directors are then selected, and after some preliminary meetings of the proprietors and the sanction of Parliament has been obtained to the scheme, a secretary, engineer, and other officers are appointed. The route the line is to take has then to be surveyed and levelled, duties which have to be performed with the utmost precision, and in the carrying out of which great difficulties often present themselves. It is stated that when Robert Stephenson was determining the route of the London and Birmingham Railway, he walked over the intervening districts no less than twenty times. When the surveying and levelling have been completed, the engineer is enabled to prepare his calculations for

the intended railway, one of the most important points being to see that the various gradients are most judiciously arranged.

Another great object in the formation of the lines, is to have just enough earthworks to remove from the cuttings as will form the embankments, and just sufficient embankment to use up the material from the cuttings. Great engineering skill is absolutely necessary in all departments of the undertaking, especially with regard to the making of the tunnels, and the work has to be carried out in the most systematic manner possible. Finally, the construction of the lines and the building of stations, etc., are undertaken by contractors, and the work is commenced in real earnest.

As might be expected, much annoyance is in many cases felt by the owners of land through which the railway is to pass, and exorbitant demands have often been made for compensation. The following may be taken as good illustrations. In the making of the Edinburgh and Glasgow Railway, the directors of the Glasgow Lunatic Asylum made a claim for £44,000. Before the trial the claim was reduced to £10,000. The jury awarded £873, about 2 per cent. of the demand. Many noble landed proprietors, amongst them members of the House of Lords, profited considerably by the approach of railways to their estates. Fabulous sums were paid in respect of compensation for land necessary for the lines, the amounts varying very much according to the parliamentary interest of the owner. In one instance, a house and park valued

at £30,000 were in possession of a certain peer of the realm. One of the earliest railways came into contact with this park and took away a small slice of it. For this small portion a sum of £30,000 was obtained for compensation. Some time after, a second item of £30,000 was obtained from another company for another small slice of this estate. That is to say, £60,000, double the value of the whole estate, had been secured for alleged depreciation, whereas the property was greatly increased in value.

Notwithstanding the difficulties, even under the most favourable circumstances, which have to be contended with in the making of railways, they have now been constructed in districts which were considered by eminent engineers some years ago to be impregnable to the system. There are places in some parts of Scotland 120 miles from a railway, but while the difficulties to be overcome appear almost insurmountable, and although the expense incurred would be enormous, there are grounds for anticipating that, in the course of time, railways will penetrate some of the most mountainous districts. The Midland Company's line, which now runs from Rowsley, through Bakewell, to Buxton and Manchester, was an undertaking of considerable magnitude. For some years the idea of a railway ever existing in the neighbourhood was given up as hopeless. The work was, however, at length attempted and successfully carried out. Those who have travelled on this line can testify, not only to the splendid scenery through which the railway passes, but also to the difficulties which had to be overcome,

from the number and length of the tunnels, the deep cuttings, high embankments, and viaducts which had to be constructed. Similar difficulties have been experienced in other parts of the country; but we now find railways crossing immense valleys, scaling high mountains, and when an ascent is impracticable, as a road must be found somewhere, instead of a line being made up the mountain a way is made through it. So stupendous have been the achievements in connection with our iron roads, that at the present time it would seem that no obstacle can be a permanent barrier to the formation of a railway.

As an indication of the nature of the undertakings which we may look for in the, perhaps, immediate future, the proposed English Channel Tunnel, about which there has been so much discussion and speculation, may be instanced. The enterprise has been entered into, both by English and French engineers, in a very thorough manner, and the scheme is now considered to be no visionary one. The land for the approach to the tunnel on the English side has been bought, and other steps taken towards a commencement of the work. The total length of the tunnel, if completed, would be twenty-nine miles and three-quarters; the portion beneath the Channel, twenty-two miles.

As a work of great engineering skill, the bridge over the river Severn now in progress takes a prominent position. This is intended as a connection between the Great Western Railway on one side, and the Midland Railway, in Gloucestershire, on the other.

It will, when finished, be three-quarters of a mile long, will comprise twenty-two spans, and two of the piers will be carried to about sixty feet above high water mark. Then there is the Severn Tunnel, only a few miles off, now in course of making, intended to connect the Great Western system in South Wales with Bristol. When completed, it will be four miles and a half in length, one-half of which will be under the Severn.

The Thames Tunnel and the metropolitan lines are too well known to need more than a reference. The Blisworth cutting was a great undertaking—upwards of 1,000,000 cubic yards of earth had to be removed. 3000 barrels of gunpowder were used in blasting, and the cost of the work was £250,000. Among the most remarkable tunnels may be mentioned the Kilsby Tunnel, near Crick. This is 1⅓ miles in length, and cost £125 per yard. The Box Tunnel, between Bath and Chippenham, is 1¾ miles long: about 130 tons of gunpowder and 130 tons of candles were consumed in blasting and lighting, and 1100 men and 250 horses were constantly engaged. The time occupied in making it was 2½ years. One of the longest tunnels which has yet been made in Great Britain is on the Sheffield and Manchester Railway. This is more than three miles in length. It was in progress about six years, and as many as 1500 men were employed at one time in its formation. One of the most remarkable viaducts is on the London and South Western Railway, the whole of the distance from Nine Elms to Waterloo, about two miles,

being thus constructed. The viaduct across the valley of the Dee, in the Vale of Llangollen, is a wonderful structure. Its greatest height is 150 feet above the level of the river, and its length about one-third of a mile. It is supported by nineteen arches, and nearly the whole of the building is composed of beautiful stone.

The number of bridges on some lines is very surprising. On the London and Birmingham line there are no less than 160 bridges over, and 110 under, the railway. The longest bridge in the world is that over the Tay, in Scotland. This is one of the most important and gigantic civil engineering works of our time; it was completed in 1877, and opened for traffic in the month of September that year. It was designed to form a direct railway communication between the North British Railway, in Fifeshire, and the town of Dundee. The total length of the bridge is 10,320 feet. It consists in all of 89 spans; three of 60 feet, two of 80 feet, twenty-two of 120 feet, fourteen of 200 feet, sixteen of 120 feet, twenty-five of 66 feet, one of 160 feet, and six of 27 feet. In one part there is a clear height of 88 feet above high water mark. The heaviest pier weighs 145 tons. In the construction of the entire bridge there were used 3600 tons of wrought iron work, 2600 tons of cast iron work, 35,000 cubic yards of brickwork, and 87,845 cubic feet of timber. The contract for the entire work amounted to £217,000.

The Britannia Tubular Bridge, so intimately associated with the name of Stephenson, uniting the

shores of North Wales and the Isle of Anglesea, is one of the most gigantic structures of modern times. It has been described as "an iron tube hung across an arm of the sea." The iron tunnel is supported on three piers, two on the Carnarvon and Anglesea shores, and one on the rock in the centre of the Straits, with massive piers on each side. Nothing less than a sight of this bridge is sufficient to create an adequate idea of its height and dimensions. In the execution of this grand undertaking there were used 1,400,000 cubic feet of masonry, 10,000 tons of malleable iron for the tubes, and the total cost was £500,000. The total length of the bridge is 1000 yards, and the greatest height 240 feet above high water mark—more than two-thirds the height of St. Paul's Cathedral. In Mr. Williams's capital book, "Our Iron Roads," published in 1852, an illustration of the bridge is given, together with a very interesting detailed description; and here it may be remarked that Mr. Williams's work will well repay perusal. As a description of our railway system of a quarter of a century ago, it is most entertaining and complete.

Though a continental undertaking, reference should here be made to the Mont Cenis Tunnel, which forms a direct railway communication between France and Italy. Its length is eight miles all but eighty-five feet, and is another of the most extensive, costly, and difficult undertakings ever attempted in connection with railways. The total expense of this vast work amounted to 65,000,000 francs, or more than £2,500,000. It may be mentioned that arrangements are made for a daily

express to leave Rome for Paris, and *vice versâ*, to pass through this tunnel, and a passenger is thus enabled to make the journey in about forty-eight hours. As the result of this arrangement, a journey from London to Florence can now be accomplished in forty-eight hours, and to Rome in fifty-eight hours.

Mr. Gladstone, speaking at the banquet of the Civil Engineers in May, 1872, said—and not without reason—"You have already covered the civilized portion of the world, and you are rapidly piercing the uncivilized. The cataracts of the Nile are no longer secure. I believe the next step will be a railway across the desert of Africa. Underground as well as above, you will be compelled to employ yourselves, and when you have dealt sufficiently with the bowels of the earth, there will remain to you the regions of the air."

Well might the poet exclaim:—

"No poetry in railways! foolish thought
Of a dull brain, to no fine music wrought,
By Mammon dazzled! Though the people prize
The gold untold, yet shall not we despite
The triumphs of our time, or fail to see,
Of pregnant mind, the fruitful progeny
Ushering the daylight of the world's new morn.
Look up, ye doubters, be no more forlorn!
Smooth your rough brows, ye little wise! rejoice,
Ye who despond! and with exulting voice
Salute, ye earnest spirits of our time,
The young Improvement ripening to her prime,
Who, in the fulness of her genial youth,
Prepares the way for Freedom and for Truth;
And break the barriers that, since earth began,
Have made mankind a foreigner to man.

Lay down your rails, ye nations, near and far;
Yoke your full trains to Steam's triumphal car;
Link town to town; and in these iron bands
Unite the strange and oft-embattled lands.
Peace and Improvement round each train shall soar,
And Knowledge light the Ignorance of yore;
Men joined in amity shall wonder long
That Hate had power to lead their fathers wrong;
Or that false glory lured their hearts astray,
And made it virtuous and sublime to slay."

MACKAY.

CHAPTER IV.

NOTED MEN.

Among the men whose names will ever be associated with the history of our railways, those of George Stephenson, Robert Stephenson, and George Hudson will not be the least prominent. There are many others who are justly entitled to honourable mention, such as Mr. Gray, to whom reference has already been made; the services of Pease, Brunel, Rastrick, Hackworth, Barlow, Brassey, Sir Morton Peto, and others, will be familiar to readers.

While it is not necessary to fully reiterate here what has been so frequently told elsewhere of the lives of our great engineers, it would seem that a popular account of our iron highways, however brief, would not be complete without some mention of these pioneers of the railway system. The biography of such men may be read again and again with interest and profit.

The name of George Stephenson naturally takes the first position; and although the tale of his remarkable life—principally through the medium of

Mr. Smiles's charming biography of the great engineer—must ere now have become almost as "household words," it will not be out of place, perhaps, to note some of the most important facts in connection with Stephenson's career. He was born at the village of Wylam, eight miles west of Newcastle, on the 9th of June, 1781. His father was employed as fireman of the pumping engine at the Wylam colliery, and was in receipt of twelve shillings a week wages. At the age of eight, without having had any schooling, he began the work of life by herding cattle, his wages being twopence a day. He was afterwards engaged at the colliery at sixpence per day; he was then so young that he often hid himself when the overlooker passed, for fear he might be considered too little to earn his wages. When in his teens, he worked as a fireman at the Mid Mill, Winning near Newcastle, where he remained two years, his wages being one shilling a day. When the pit at Mid Mill was closed, George was sent to work a pumping-engine near Throckmorton. While here his wages were raised to twelve shillings per week, when he said he was a man for life; although at this time he was in his eighteenth year, and, it is said, could neither read nor write.

From the time George was appointed fireman he applied himself so assiduously and successfully to the study of the engine—taking the machine to pieces whenever he had an opportunity, for the purpose of understanding its various parts—that he soon acquired a practical knowledge of its construction, and

very seldom needed to call to his aid the engineer of the colliery. Some years after, so decided was his ability, that Lord Ravensworth supplied him with money to make a locomotive. He was appointed engineer of the Stockton and Darlington line at a salary of £300 a year, and subsequently engineer of the Liverpool and Manchester Railway at £1000 a year.

He was also associated with the London and Birmingham Railway. He afterwards became a manufacturer of locomotives, a railway contractor, and a great colliery owner. It is recorded of him that in reply to a lady he said, "Why, madam, they used to call me George Stephenson; I am now George Stephenson, Esquire, of Tapton House, near Chesterfield. I have dined with princes and princesses, and I have dined off a red herring in a hedge bottom."

To do honour to the memory of the great engineer, the statue erected in the great hall at Euston Square Station, London, has been supplemented by the erection of a memorial hall at Chesterfield, Derbyshire, the foundation stone of which was laid on October 17th, 1877, by the Marquis of Hartington, M.P. The cost of the hall is estimated at about £11,000. The scheme comprises a free library, with science and art schools, and a public hall with the usual accessories. At a banquet which followed the ceremony of laying the foundation stone, there was a large assemblage, some of those present having been the intimate associates of Stephenson. Of those who joined in the celebration, perhaps no one could speak with better

knowledge as to the characteristics of the man to whom honour was being done, than Mr. Binns, of Clay Cross. One of Stephenson's principal qualities was his determination to succeed in any work he undertook. On the occasion to which we are alluding, Mr. Binns remarked that "George Stephenson was heard to say he never was beaten but once in his life, and that was in trying to effect a marriage between his maid-servant and his stable-man."

Stephenson's son Robert commenced his apprenticeship under his father, who had established an engine manufactory at Newcastle. He attained to great eminence as a railway engineer, and the construction of many important and extensive works, both in England and on the continent, was carried on under his superintendence. Among the numerous undertakings which were conducted by him, the High Level Bridge over the Tyne at Newcastle, and the Britannia and Conway tubular bridges, are of the first rank.

George Hudson, who at one time was called the "Railway King," served his apprenticeship at York as a draper, and subsequently carried on business with great success. He made a large fortune by successful railway speculations, and rose to great influence. He was appointed chairman of the North Midland Railway Company, and held various other offices for which he was qualified by his great capacity for business. The electors of Sunderland sent him to Parliament, where he was regarded as an oracle. His speculations were often so extensive

that it is said he made £100,000 in one day. The popular enthusiasm presently cooled, the tables were turned, and Hudson's popularity was materially lessened. For a short time he lived on the continent in very reduced circumstances. As is well known, he afterwards returned to England, a number of his friends having presented him with a comfortable annuity; he, however, enjoyed this but a short time before he died.

It is not without interest to note the marked difference between the two Georges—Stephenson and Hudson—the one a hardworking, persevering, and clever man; the other a bold and large speculator, at the same time clever and far-seeing withal. In comparing the career of these two men, the old adage, "Slow and steady wins the race," may be said to have been truly exemplified. Stephenson's progress was one of gradual advancement to permanent honour and success, while that of Hudson was a fitful series of bold master-strokes.

There are many eminent men of the present day who have exhibited wonderful capabilities both in connection with the management and construction of railways, men perhaps no less celebrated than those already alluded to; for while to the Stephensons, and to like men of their day, the inauguration of the great railway system may be said to be mainly due, to the railway managers and engineers of the present time we owe the rapid development of the system, combined with the high state of perfection in every department of its working, which has been attained

in such a comparatively short period. A long list of prominent names might be given; but where there are so many, it would be very difficult to so make a selection as not to leave out some worthy of honourable mention.

CHAPTER V.

CONTRACTORS AND NAVVIES.

In making the first railways, the whole work of organization and direction in their construction rested with the engineer and his assistants. In making the Liverpool and Manchester line, the elder Stephenson had not only to be engineer, but also to manage the navvies. There were not many men who had the capacity equal to control every department of the work, and it was not long before the contract system came in vogue. At the commencement, these contractors were in a comparatively small way, and hence a work of any considerable magnitude had to be subdivided. As the railway system grew, the contract system grew in extent and importance; the next arrangement being that the work of constructing a railway was undertaken by chief contractors, who bargained to do the whole of the work under the supervision of the company's engineer. Then the chief contractors would sublet the work to a number of smaller speculators, and these sub-contractors engaged gangs of navvies to carry out

the work under their immediate supervision. This plan, varying of course according to circumstances, seems to have been pretty generally adopted up to the present time. Many of the contractors, especially those who took a secondary position, were subject to remarkable vicissitudes, their circumstances at times compelling them to succumb pecuniarily, and leave the work undertaken to be completed by others. Some were more fortunate, and achieved considerable success.

One of the first and most successful contractors, and who also paid great attention to the moral and physical welfare of the men he employed, was Mr. Thomas Brassey, whose biography has been so ably written by Sir Arthur Helps.

Mr. Brassey was a contemporary of Stephenson, and the contractor was perhaps no less remarkable than the engineer for his thoroughness and his determination to overcome all obstacles, however great, in connection with any work he undertook. He can with truth be called the king of railway contractors; he was one of Nature's gentlemen withal, and noted alike for his courtesy and liberality. As an employer he was greatly respected. He was a good judge of character; and, having made a careful selection of men for certain positions, he found it the best policy to place in them complete confidence, and not to vex them by continual complaints and interference in executing the details of their work.

His first contract was to make ten miles of the Grand Junction Railway. He was contractor for the

Great Northern Railway, commenced in 1847 and completed in 1851, from 5000 to 6000 men being employed in connection therewith. Mr. Brassey was concerned in the construction of the Grand Trunk Railway of Canada, began in 1852. The contract in this case included the erection of the Victoria Bridge, which crosses the St. Lawrence river near Montreal, where the stream is about a mile and a half wide. In this undertaking Mr. Brassey was associated with Messrs. William Jackson, Sir Morton Peto, and Mr. E. L. Betts.

Mr. Brassey's contracts included railway works in Austria, Denmark, France, Holland, Italy, Norway, Poland, Spain, etc. His remarkable life ended at Hastings on the 8th of December, 1870.

The name of Sir Morton Peto well deserves honourable mention, being especially noted for his endeavours at all times to minister to the well-being of those he employed. He was no mere theorist in his business, as was pointed out many years ago in the *Illustrated London News*, No. 469: "He worked—and those who know his character can judge of the energy he imparted to his labours—not as the relative and future heir of one of the leading contractors of the kingdom, but as if he were destined, during his whole lifetime, to earn his livelihood as a journeyman in the capacity of a carpenter, a bricklayer, and a mason."

The inauguration of the railway system brought into existence a completely new order of industry. Men were wanted strong-i'-th'-arm, even though there

might be little mental power, and they were attracted by good wages from all parts of the country. It is said that the best men came from the fen district, where they to some extent had undergone a training for making railways, in execution of excavations and embankments. The making of a new railway brings with it quite a colony of "navvies," and there at once comes into existence a number of petty traders. In connection with the making of the Kilsby Tunnel, near Rugby, on the London and Birmingham Railway, some 1200 men were employed, and the work of lodging and feeding such a multitude must have been a considerable task. As to sleeping accommodation, one room containing four beds had sometimes to serve for sixteen men, eight taking their rest by day, and eight by night.

Such men are proverbial for their great power of endurance and indomitable pluck. Numerous illustrations might be given of these characteristics, but one will suffice. In the making of a deep cutting, a waggon loaded with stone, and on which a number of men were riding, was thrown off the rails, resulting in severe injury to several of the men. One strong fellow scrambled out from the heap, and, feeling his arm, said to his comrades, "It's broke, I maun go home;" and he walked off to his dwelling, which was six miles distant, supporting the broken limb with the sound one. For many years the moral condition of these men was even lower than it is now, and every species of depravity was fostered from the circumstances in which they were placed.

At one time the truck system in the payment of wages was very much practised. Contractors have been known to undertake work on terms which could not possibly pay so far as the work itself was concerned, but have succeeded in realizing thousands of pounds by the truck of beer and the commonest articles of food. During the construction of many of the Irish lines great hardships were inflicted on the men by paying them by monthly bills, payable three or four weeks after date; and these were subject to discount before the money could be obtained.

Some of the well-known characters become possessed of nicknames, often of the most extraordinary kind, and to which they become so accustomed, that were some of them asked their proper names, they would be somewhat at a loss to give them. Notwithstanding the fact that, as a rule, these men are so rough and uncultivated, there exist much brotherly feeling and good nature among many of those who continuously accompany each other from place to place. For the most part the management of large bodies of such men can be no easy task; but while there are many hardened characters who can be ruled neither by love nor fear, respect and obedience can be commanded if a little tact, a bold demeanour, connected with kind manner, be displayed in dealing with them.

CHAPTER VI.

COST OF CONSTRUCTION—WORKING EXPENDITURE—DIVIDENDS—GENERAL STATISTICS.

THE money which has been wasted on the formation of railways has been roughly estimated at £12,000,000 to £15,000,000. This has arisen from a variety of causes, principally, perhaps, the enormous demands made as the price of land through which lines have had to pass, and the reckless contests waged with opponents to many of the proposed schemes. In obtaining the necessary Acts, the amounts paid for parliamentary and legal expenses have also been immense. The following are a few examples:—

Bristol and Exeter about	£18,000
Great Western	89,000
Great Northern	434,000

It is said that the solicitor's bill of the original South Eastern Company contained ten thousand folios, and amounted to £240,000.

The cost of construction varies very much in different parts of the country. According to the Board of Trade returns for 1876, the outlay per mile for the

railways of the United Kingdom amounted to £39,012. In Ireland the average cost has been about £14,000 per mile, and in Scotland £30,000 per mile. The following figures show the expenditure per mile of a few of the principal English companies :—

London, Chatham, and Dover about	£140,000
Metropolitan	655,000
Midland	50,000
North Eastern	37,000
South Eastern	63,000

The large expenditure in connection with the two lines first named is to be accounted for by the amount of money which had to be paid for land, and the general costliness of the undertakings. In every case the expenditure has of late [illegible]reatly increased, an important item being repre[illegible] the introduction of the block system. In [illegible] situations some original lines were made a[illegible]f about £10,000 per mile. For instance, [illegible]pton and Peterborough line, forty-seven mile[illegible]h, cost £429,409. The line of forty-two miles fro[illegible] to Scarborough was constructed at a cost of £6000[illegible] mile.

The total working expenditure of t[illegible] railways of the United Kingdom amounted, in 1876, to £33,535,509, or about 54 per cent. of the receipts. Some of the principal items which go to make up this amount are as follows :—

Maintenance and renewal of way and works, etc.	£6,693,653
Locomotive power	8,437,550
Traffic expenses	9,788,983
Rates and taxes	1,295,108

Government duty	£728,216
Compensation for damage and loss of goods	323,949
Legal and parliamentary expenses	267,824

As compensation for personal injury the companies paid £319,866, the result of accidents and collisions. Had such a sum been expended in improving the working arrangements, it is more than probable that many of the accidents, for which the companies had to pay so heavily, might have been averted.

Investments in railways have generally been considered safe and remunerative. Previous to the great mania in 1845, the success of railways was most assuring. The temptation to investors was so great, that speculation in railway property was almost universal. All at once a new field for investment was completely flooded [illegible] scheme, however impracticable, was started at the outset did not find willing adherents [illegible] ay papers were crammed with advertisements [illegible] he post-office was tested to its utmost capacities in the distribution of prospectuses, etc. [illegible] was a fine field for knavish adventurers, and many made fine profit thereby. In about a month some 357 railway projects were announced in three newspapers, with a total capital of £332,000,000 sterling. It was only to be expected that a great reaction would ensue, and this occurred in 1846. Before this came about, the Liverpool and Manchester, London and Birmingham, and other companies, paid dividends at the rate of 10 per cent. per year, while the Stockton and Darlington paid 15 per cent. Such, however, was the effect of the

crisis referred to, that the shares of the strongest companies were subjected to a rapid fall, as will be seen from the following:—

	Original price.	Jan., 1845.	April, 1848.
Eastern Counties . .	14½	17½	13
London and North Western	100	233	126
Midland	100	128½	95

The following figures, showing the dividends paid by some of the principal companies in 1872 and 1876, will no doubt be of interest:—

	1872.	1876.
London and North Western . . .	7⅞ ...	6⅝
Great Northern	7⅛ ...	5½
Midland	7¼ ...	5⅜
North Eastern	9¼ ...	7⅜
Great Eastern	¼ ...	⅛
Great Western	5½ ...	4¼

A short reference to the immense traffic on our railways will be sufficient to convey an idea as to their rapid progress, the work which is being done by them, and the employment of industry which they afford.

The annexed extract from the returns will indicate the growth of the system in twenty years:—

Year.	Length of line open. Miles.	Receipts from all traffic.	Per mile of line open.	Per train per mile.
1856	8,710	£23,165,493	£2,660	5*s.* 11¼*d.*
1866	13,854	38,164,354	2,755	5*s.* 4*d.*
1876	16,872	59,917,868	3,551	5*s.* 6¾*d.*

With regard to the present status of our railways, the returns for 1876 furnish the following interesting particulars :—

Authorized capital	£741,802,527
First-class passengers	44,859,066
Second-class passengers	66,478,195
Third-class passengers	426,950,034
Holders of season tickets	394,427
Number of miles travelled by all the trains	215,711,739
Receipts from passengers	£23,057,731
Receipts from excess luggage, parcels, carriages, horses, dogs	£2,418,057
Mails	£684,533
Receipts from goods traffic	£33,754,317
Total from all sources	£62,215,775
Total working expenditure	£33,535,509

In 1876 the rolling stock consisted of—

Locomotives	12,994
Carriages for passengers	27,191
Carriage-trucks, horse-boxes, etc.	10,485
Waggons for merchandise and live stock	356,121
Sundry carriages and waggons	10,730
Total	417,521

The traffic on the Metropolitan line is enormous. During one week of the Christmas holidays the number of passengers considerably exceeds 1,000,000. In 1876 the number conveyed by the Metropolitan Railway, including the "Metropolitan and St. John's Wood," and half the "Hammersmith and City," reached the enormous total of 50,678,604, besides 10,809 holders of season tickets—the length of the lines being fourteen miles.

In 1877 between 56,000,000 and 57,000,000 of

passengers were conveyed on the Metropolitan, at an average receipt of twopence each. On the main line there were 442 trains in every twenty-four hours, and over the widened lines 568 trains, making a total number of trains per day of 1010. In the process of signalling, during the twenty-four hours, 46,826 bell signals were made, and there were 46,826 train signals. The movements and manipulations of the levers backwards and forwards numbered 66,258. In the work of signalling and working the trains on the block system, 160,000 operations are performed every day by human hands.

As an instance of the capacity of the large railway companies in London, it may be remarked that in about four hours more than 30,000 passengers have been taken from the Crystal Palace on a fête day, without accident of any kind. This gives an idea of the facility of our railways for transferring a large army from one part of the country to another.

It will give an idea of the traffic at Ludgate Hill Station when it is stated that during the week ending the 12th of August, 1877, including the principal bank holiday of the year, the London, Chatham, and Dover booked to and from that station 70,226 passengers. This does not include season ticket holders, of which, during the week, there were perhaps 5000 passed in and 5000 out of the station; nor are passengers booked to or from Ludgate Hill by other companies included.

The weight of coal conveyed to the metropolis is

enormous. The following figures show the tonnage for three years :—

	Tons.
1874	4,689,785
1875	5,065,452
1876	5,173,237

Some idea of the enormous amount of goods traffic conveyed may be gathered from the fact that, in connection with the collection and delivery of merchandise in the metropolis, the London and North Western Company employ 1600 men and 1000 horses.

CHAPTER VII.

GENERAL SKETCH OF THE SYSTEM.

On the 1st of January, 1877, there were in Great Britain 16,872 miles of railway, distributed as follows:—England and Wales, 11,989 miles; Scotland, 2726 miles; Ireland, 2157 miles; and belonging in all to about 230 companies. Thirty-seven of these are joint railways; for instance, the Bourn and Lynn line belongs to the Great Northern and Midland, the Birkenhead line to the Great Western and London and North Western, the Shrewsbury and Hereford line to the Great Western and London and North Western, and so forth. Many of the other lines are either worked or leased by some of the larger companies, the result being that the number of working lines is reduced to something like 121.

The total number of stations in Great Britain, including junctions, sidings, collieries, &c., is upwards of 12,500, more than half of which afford accommodation for passengers. It may surprise many to read that in London and suburbs there are 69 stations for goods traffic and 206 stations available for passengers,

of which the Great Eastern possesses 36, the London and North Western 15, London, Chatham, and Dover 19, Metropolitan 18, and the other companies in proportion.

It has already been stated that in England and Wales there are 11,989 miles of line. Of this mileage about two-thirds of the entire length are in the possession of six of the large companies, as follows:—

Great Western	2059
London and North Western . . .	1632
North Eastern	1429
Midland	1238
Great Eastern	859
Great Northern	640
	7857

It may be interesting to take some note of the work done by these and other great companies, and to refer briefly to the districts through which they pass.

The great centre of the system is London; for a majority of the principal companies have their finest stations and carry on their management there, the lines stretching out from the metropolis in all directions. Every company which can by any possible means find a way to London does so, and strives to provide the route which will be most attractive to the public. The truth of this is evident from the fact that nine of the companies having *termini* in London own 7936 miles of line out of a total in England and Wales of 11,989.

Taken with regard to mileage, the first company in importance, since the amalgamation with the Bristol

and Exeter Railway, is the Great Western. On the 1st of January, 1877, it possessed 2059 miles of line. The total receipts for 1876 amounted to £7,032,321; the number of passengers carried, 42,280,247. This railway is made up principally of what were originally the Great Western, the West Midland—or as it used to be called, the Oxford, Worcester, and Wolverhampton—and the South Wales, with all their subsidiaries. The amalgamation thus effected was carried out under Acts of Parliament granted in 1867 and 1869. The Bristol and Exeter Railway, which had its origin in 1836, was from August 1, 1876, incorporated with the Great Western, and this addition of about 200 miles gave this company the first position as regards mileage. Until recent years the principal part of this undertaking was worked with broad gauge lines. The substitution of narrow gauge has been a great public boon. With head-quarters at Paddington Terminus, London, the Great Western starts from the metropolis, passing through Oxfordshire, Berks, Wilts, and Gloucestershire, the route comprising some of the finest scenery which England possesses. In the last-named county the railway serves a large cloth-manufacturing interest. Its lines also extend through Warwickshire, and provide a good service of trains between Birmingham and London; the system also extends to Chester, Shrewsbury, Hereford, etc. From Gloucester it proceeds along the South Wales coast to New Milford, thus forming a means, perhaps the best, of communication between London and the South of Ireland. It also conveys to the metropolis most of the coal and

iron and other traffic from the South Wales district. The Severn tunnel and bridge, referred to in a previous chapter, are intended to facilitate the working of this traffic. After dealing with Bristol, this railway proceeds through Bridgewater and Exeter to Plymouth, and on to Penzance, the nearest station for Land's End. The Great Western is remarkable for its very conservative policy. In this respect it is notable for its retention of third-class fares, as distinguished from parliamentary, or a penny per mile fares. The same may be said of express fares. The resolute opposition, and the appeal made by the Great Western to the Railway Commissioners, as regards the abolition of second-class carriages by the Midland, will be remembered.

Next comes the London and North Western Railway, which had its origin in the London and Birmingham, Grand Junction, and Manchester and Birmingham lines, incorporated by an Act dated July 16, 1846. Subsequent amalgamations, including the Lancaster and Carlisle, Chester and Holyhead, Bedford and Cambridge, Central Wales, etc., give this important system a total length of 1632 miles. The North Western has a capital of nearly £70,000,000; the receipts for 1876 amounted to £9,320,977; and, exclusive of holders of season tickets, the number of passengers conveyed was 46,746,332. The chief offices of the company are at the Euston Square Terminus. This is one of the finest of the old stations. It cost £100,000, and occupies more than six acres. The great hall immediately adjoining the main

entrance, adorned in the centre with a statue of George Stephenson, has a very imposing appearance. The hall is 125 feet in length, and 60 in width and height.

The main line, starting from London, passes through Hertfordshire and Buckinghamshire, with branches west to Oxford and east to Cambridge, through Northamptonshire and Warwickshire, with lines to Peterborough and Stamford. Deviating from the trunk line, a connection is formed with the great towns of Birmingham and Wolverhampton, and the main line is joined again at Stafford. Proceeding *viâ* Crewe, the North Western passes through densely-populated Lancashire, where the company has quite a network of railways to accommodate the enormous trade of the district. As a communication between Liverpool and London, and Manchester and London, the North Western has a very important work to perform. The "North Western" Hotel at Liverpool, containing upwards of 200 bedrooms, is of unusual magnificence, and is much used by travellers to and from the United States. The service of trains between Liverpool and London is amongst the fastest and best in the kingdom; and by this route the traveller gets a view of the Menai Straits, the bridges made under the direction of Stephenson and Telford, Conway Castle, Great Ormes Head, etc., the journey occupying only five hours. To the night trains sleeping saloons are attached. Pursuing its course northward, the line proceeds through Westmoreland, and ends at Carlisle after a direct route of 300 miles from

the metropolis. From Stafford and Crewe there are lines branching off and running through the centre of Wales, thus forming a connection with the manufacturing districts of the south. The London and North Western Company also possesses the chief communication with Dublin and the North of Ireland. Running in a westward direction from Chester, the railway traverses the hilly coast of North Wales, passing through splendid scenery, and on through the Britannia Tubular Bridge to Holyhead. As a feeder to the London centre, this company conveys a large amount of the Scotch traffic. Her Majesty the Queen, in travelling to Scotland, invariably uses the London and North Western line. The engineering establishment at Crewe is worthy of passing notice. These railway works are said to be the largest in the world. As many as 140 engines have been manufactured in a year, and no less than 250 are undergoing repair at one time. More than 6000 persons are employed here.

The management of this railway is generally characterized by enterprise and liberality when compared with others, although in the passenger department it is frequently a pace behind the Midland, with which company, it may be remarked, it seems to work very harmoniously. Considerable attention is paid to goods traffic by this company, but it is difficult for the managers to act independently, so hampered are they by agreements. There is, however, a large field for enterprise, and it remains for some principal company to take the lead.

The North Eastern comes next in order of mileage, with 1429 miles of line, and a capital of over £50,000,000. The returns for 1876 showed an income during that year of £6,489,754; number of passengers 29,454,220, and 15,533 holders of season tickets. Originally the company consisted of the York, Newcastle and Berwick, the York and North Midland, the Leeds Northern, and the Malton and Driffield, all merged into one concern in 1854. The present dimensions of this railway have been attained by subsequent amalgamations with the Newcastle and Carlisle, Stockton and Darlington, West Hartlepool, etc. The company has its head-quarters at York, and enjoys the ownership of the lines in nearly the whole of Yorkshire. For railway communication, it is in sole possession of the fashionable seaside towns of Bridlington, Scarborough, and Whitby. Going north, this company serves the counties of Durham and Northumberland; Newcastle being a very important centre. The North Eastern differs from the other principal companies in the remarkable compactness with which its lines are distributed. It has also the advantage of being situated in a very populous and flourishing, as well as a wealthy, district. From its peculiar position it has little competition to contend with. The chief opposition it has to work against is communication with towns on the coast by water. With regard to the inland towns, the company has the public entirely under its control, and it has thus full power to demand what rates it may think proper to charge, both as regards local traffic

and goods sent to its stations from other companies' lines. As a dividend paying concern this railway takes a leading position. The returns to June 30, 1876, showed a dividend on the ordinary stock of the company at the rate of 8¾ per cent. per annum. A more liberal policy than existed a few years since seems to have been introduced into the administration.

Although, as regards extent of territory, the Midland takes only the fourth position, it may in many respects be said to be our leading railway company. It is truly the *Midland* railway, for it runs right through the very centre of England, traversing nearly half our counties, and is the only line which connects all the eight principal English towns —London, Liverpool, Manchester, Birmingham, Leeds, Bradford, Bristol, and Sheffield. The original Midland consisted of the North Midland, Midland Counties, and Birmingham and Derby lines, amalgamated in 1844. Subsequently, there were added the Bristol and Gloucester, Birmingham and Gloucester, Leeds and Bradford, etc. Extensions were afterwards made from Leicester to Hitchin, by Act of Parliament obtained in 1853. The Rowsley and Buxton line was authorized in 1860, and an Act was obtained in 1863 for the construction of the Bedford and London line. In 1866 the very important addition of seventy-eight miles, in the Settle and Carlisle line, was sanctioned. The company has thus continued to add to its possessions, with the result that on January 1, 1877, it had 1238 miles of line. The total paid-up capital

amounts to nearly £60,000,000. The income for the year 1876 was £6,245,218, and 28,716,220 passengers were conveyed, exclusive of 9825 holders of season tickets.

The station belonging to the company at St. Pancras, London, is perhaps the finest in the world. An adequate idea of its beauty and dimensions cannot be conveyed by the mere use of words. Some impression may be given as to its extent when it is stated that the span of the roof is no less than 240 feet, and its depth, measured from the top of the arch to the tie, 107 feet. Adjoining the station, or, more strictly speaking, a part of the station, is the Midland Grand Hotel, one of the finest modern buildings in the metropolis. It has bedroom accommodation for 500 guests. The furniture throughout is of the most elaborate, costly, and luxurious description; for instance, all the first-class private sitting-rooms are supplied with Erard's pianos. The public rooms are of unusual magnificence. The terms are comparatively moderate.

From this, the grandest railway terminus in the world, the Midland main line commences. Passing through Hertfordshire, the traveller gets a sight of St. Alban's Abbey. Next comes Luton, the centre of the straw-plait trade; then Bedford, with its great agricultural implement and steam plough manufactory. Here, too, as almost everybody knows, John Bunyan was imprisoned. Close by is Elstow, where he was born. Fifty miles further is Leicester, with its great hosiery trade. Still pursuing the same

course comes Derby, the head-quarters of the company; and on through Sheffield and Leeds to Morecambe and Barrow-in-Furness, and from Settle to Carlisle. During the route it thus takes, branches extend eastward from Kettering to Cambridge and Leicester to Lynn, here connecting the system with a well-appointed line of steamers to Hamburg. Further on, there are connections with Nottingham, with its great lace-making and hosiery establishments, and Lincoln. Westward, there are lines communicating with Manchester and Liverpool, between which places and the metropolis the company has a service of trains unsurpassed by any other. The route, too, is noted for its picturesque and beautiful scenery, such as Matlock, with its high limestone hills, healing waters, and petrifying springs; the old baronial hall of Haddon; Chatsworth, the "Palace of the Peak," and one of the seats of his Grace the Duke of Devonshire; with the general attractions of the High Peak district of Derbyshire. Other important lines extend to the West of England, *viâ* Leicester and Derby, to Burton, Birmingham, Worcester, Cheltenham, Gloucester, Bath, and Bristol.

In the passenger department the Midland has quite established itself as the leader of the van of progress. To this company we are indebted for the booking of third-class passengers by all trains, and the much-abused, but what has been proved to be a successful, policy of the abolition of second-class carriages. Then followed the introduction of Pullman drawing-room and sleeping cars; and now there is the promise that

dining saloons are to be introduced, with hot joints cooked and served as in a restaurant. New first-class carriages, open throughout like Pullman saloons, are to be made, with a space at each end for semi-privacy. Third-class carriages, similarly constructed, though not of course fitted up so elaborately, have been tried, but withdrawn after a short experience. The company's route to Scotland is now thoroughly established as one of the most popular. As will be seen from the following return for March, 1877, the Midland Company affords the chief means for the conveyance of coal to London:—

	Tons.
Midland	130,076
London and North Western	96,888
Great Northern	63,417
Great Western	62,311
Great Eastern	46,295

Next in order comes the Great Eastern Railway, with head-quarters and chief station at the new Liverpool Street Terminus, an important addition to the great architectural works in connection with our railways. The original line was called the Eastern Counties Railway, incorporated by Act of 1836. In the year 1862 the Norfolk, Eastern Union, East Anglian, and East Suffolk lines were taken into partnership, and now the Great Eastern has 859 miles of line. In 1876 the total income amounted to £2,814,125, and 37,551,573 passengers were carried, besides 8330 holders of season tickets. The lines of this company spread over the counties of Norfolk,

Suffolk, Cambridge, and Essex, and these districts are almost entirely in the hands of the Great Eastern Company. There is some competition by sea; for instance, between London and Ipswich, Lowestoft, Yarmouth, Lynn, &c. As regards inland towns, the whole of the district east of a line drawn from Lynn to London is in the hands of the Great Eastern. Notwithstanding this exclusiveness, the company has not flourished in the same degree that some of the other railways have—in a great measure to be accounted for, no doubt, by the fact that the district lacks the great manufacturing interests possessed by other companies, such as the North Eastern. Whilst much more might have been done to insure success in the shareholders' as well as the public interest, perhaps the fact just mentioned has not had due consideration in connection with the criticisms passed upon the management. It should be mentioned that the Great Eastern still keeps company with the Great Western in retaining third-class fares as distinguished from a penny a mile, or parliamentary, fares.

Whatever the case may be as regards local traffic—and there is evidence that a more liberal policy would benefit all concerned—the Great Eastern, in its dealings with its important continental traffic, takes a position equal to the other companies. The service of trains between London and Harwich, and steamers thence to Antwerp and Rotterdam, has rendered this route to the continent one of the quickest and best. Every attention is paid to the comfort of the passengers; this is especially the case on the steamers.

The Rotterdam steamers, particularly, are noted for their ample capacity, and for the elegance and completeness of all their appliances. The latest addition to the fleet, the *Claude Hamilton*, is a steamer of more than two thousand horse power, and her working speed reaches fifteen knots per hour. She has three decks, and forty separate cabins. The dining and smoking saloons are handsome and commodious. This company also pays great attention to the conveyance of merchandise by this route. Goods are conveyed at moderate through rates to Antwerp, Rotterdam, and inland towns, almost invariably with care and expedition.

The Great Northern Railway originated in the London and York and Direct Northern. In 1855 the Hertford, Luton, and Dunstable became amalgamated; afterwards the Bourn and Essendine, Boston, Sleaford, and Midland Counties, Leeds, Bradford, and Halifax Junction, and Royston and Hitchin lines, with others of more or less importance, were added. At the commencement of the year 1877 the company had 640 miles of line. The income for 1876 was £3,005,897, the number of passengers conveyed 18,149,267, besides 25,653 season ticket holders. This company's district lies principally in the county of Lincolnshire. Its lines also extend into Nottinghamshire, and through Huntingdonshire and Hertfordshire, in its route to King's Cross Station, London, where the management of the company is carried on. It has a first-class service of trains between London and Peterborough, Grantham, Nottingham, Lincoln,

etc. The Great Northern, the Midland, and the London and North Western Companies constitute the great competitors for traffic with Scotland, each doing its utmost, both as regards speed and accommodation, to outdo the other. The administration is generally liberal in character, and the financial position of the company is good. In 1876 it paid a dividend of 7½ per cent. on its ordinary stock.

The Lancashire and Yorkshire Railway comes next, with 439 miles of railway. The total receipts in 1876 amounted to £3,568,200, and 36,790,466 passengers were conveyed, in addition to 6883 holders of season tickets. The company is an amalgamation of the Manchester and Leeds, the Manchester, Bolton, and Bury, the Liverpool and Bury, the Huddersfield and Sheffield, the Wakefield, Pontefract, and Goole, the West Riding Union, and the East Lancashire. The present name—Lancashire and Yorkshire—was given by Act of Parliament in 1847. It will be remembered that a proposal was made to amalgamate this company with the London and North Western, a proposition which gave rise to the appointment of a parliamentary inquiry into the general question of amalgamation, and the issue of the Report of the Joint Committee of the House of Lords and Commons. The result was that Parliament did not give its assent to the scheme. The title of the company is no misnomer. The lines intersect the heart of Lancashire, providing accommodation for the vast manufacturing interests of such towns as Bolton, Preston, Blackburn, including Liverpool and Manchester. Then it serves

the now fashionable seaside resorts, Blackpool, Lytham, and Southport. In Yorkshire it gives railway convenience to Leeds, Bradford, Huddersfield, and Wakefield. The head offices are at Hunt's Bank, Manchester.

The Manchester, Sheffield, and Lincolnshire, with 260 miles of railway, is an amalgamation of the Sheffield, Ashton-under-Lyne, and Manchester, the Great Grimsby and Sheffield Junction, the Sheffield and Lincolnshire, the Sheffield and Lincolnshire Extension, and the Great Grimsby Dock. These concerns, with the Manchester and Lincoln Union, were consolidated by an Act granted in 1849. The company has its head-quarters at London Road Station, Manchester. From this point the line proceeds eastward to Sheffield, Worksop, and Gainsborough to Hull. From Hull, crossing the Humber by steamer, there is a line from New Holland to Great Grimsby and Cleethorpes, and another line to Lincoln. There are also branches from Sheffield to Doncaster, and to Barnsley. This concern is another of those which at least one of the larger companies is anxious to have under protection. In the summer of 1877 propositions for amalgamation with the Great Northern and Midland were made, but the parties could not agree as to terms.

The only other railway company north of London which need be mentioned is the North Staffordshire, with 195 miles of line, and which was incorporated in 1846. This may well be called the line for the great potteries, with head-quarters at Stoke-upon-Trent.

From Macclesfield the line runs to Leek, Uttoxeter, Burton, and Derby, and by another route to Stoke, Stafford, and Colwich. Then there are branches from Stoke to Market Drayton, and from Kidsgrove to Burslem, Hanley, and Longton.

The Metropolitan and Metropolitan District Railways are too well known to need a lengthened description. The former was re-incorporated in 1854, and, as stated in a previous chapter, comprises fourteen miles of line. Over this short distance the number of miles travelled by the company's trains in 1876 was 860,597. The Metropolitan District Railway was authorized by an Act dated July 29, 1874, to construct lines to complete an inner circle of railway north of the Thames, extending from Kensington to Westminster Bridge and Tower Hill. This company has eight miles of line. In 1876, no less than 27,415,183 passengers were carried, besides 7978 season ticket holders, and during that year the trains travelled 815,765 miles. By people first paying a visit to London, these underground railways are looked upon as amongst the wonders of the metropolis. The hurry and bustle to the unaccustomed traveller are almost astounding, and it can be no matter for surprise that many get left behind, in time for the next train, and that perhaps as many are carried past their intended destination. Then there is the wonder to the visitor from the country that so many thousands should be daily travelling on these lines with such rapidity, albeit almost noiselessly, so far as people in the streets are concerned.

We now come to the important lines south of the Thames; and first we will refer to the London and South Western Company, with 687 miles of line. The undertaking commenced in 1834, under the name of the London and Southampton, which was retained until 1839. In 1856 the line from Yeovil to Exeter was authorized; in 1859 the Portsmouth line was added; there were also amalgamated the Chard and Petersfield in 1863, the Andover and Redbridge in 1863, and the North Devon in 1865. Several other smaller concerns have from time to time been taken into partnership, thus giving the company a somewhat extensive territory. The total receipts for 1876 amounted to £2,616,170; and 22,430,103 passengers, exclusive of 40,638 holders of season tickets, were conveyed. With chief offices and principal station at Waterloo Terminus, London, the company's lines, after serving an important district immediately adjoining the metropolis, run right through the South of England, *viâ* Basingstoke, Salisbury, and Exeter, to Ilfracombe in the extreme West. Branches from the main line extend to the important towns of Southampton, Portsmouth, Dorchester, etc. From Southampton and Portsmouth are the principal connections with the Isle of Wight. From Southampton is the best communication with the Channel Islands, Jersey and Guernsey. The South Western route to Paris, *viâ* Southampton and Havre, if the sea voyage is the longest, has the name for being the cheapest. As is well known, Southampton is the point of departure and arrival for many of the mail

steamers, including those of the Royal Mail Steam Packet Company, the Peninsular and Oriental Steam Navigation Company, the Union Steamship Company, the North German Lloyd Steam Company, etc.

The London, Brighton, and South Coast Railway, with 349 miles, consists of an amalgamation of the Croydon and Brighton in 1846, the Shoreham and Henfield (opened in 1861), lines from the Ouse Viaduct to Uckfield and Hailsham, and the Tunbridge Wells and Eastbourne (authorized in 1864), and others too numerous to mention. The total income in 1876 was £1,805,380; passengers conveyed, 28,923,106, besides 12,818 holders of season tickets. The company's chief offices and principal station are at London Bridge, and, as its name implies, it is *the* route from London to Brighton. As a south coast line it extends from Hastings to Portsmouth. This company's route to Paris, *viâ* Newhaven and Dieppe, thence by the Western of France Railway, is a popular one. It has the advantage of the finest French scenery. The company claims it to be the shortest and cheapest.

The South Eastern original line, authorized in 1836, began at Reigate and ended near Dover; then the Croydon and Reigate line was added. In 1843 the company was empowered to make a line to Maidstone. In 1844 lines to Canterbury, Ramsgate, Margate, and the Folkestone branch and harbour were authorized. In 1845 the Tunbridge Wells branch was empowered to be made. The line from London Bridge to Charing Cross was opened in 1864, and to Cannon

Street in 1866. Starting from either of these, amongst the finest and busiest metropolitan stations, the lines of this company serve an important district, principally in the county of Kent. A communication with Reading is also effected by a branch from Red Hill. The South Eastern provides the quickest through route from London to Paris, *viâ* Folkestone and Boulogne. The journey may be performed in nine hours and a half, of which the sea voyage occupies about one and three-quarters. In addition to being the fastest, this is also the most fashionable and comfortable route. Starting from Charing Cross or other of the company's stations, the traveller has a pleasant trip to Folkestone. If the weather is not propitious, Folkestone, quite a fashionable resort, may be made a temporary resting-place. The arrival of the tidal boat at Boulogne is quite an event of each day. Immediately the steamer stops, the passengers undergo the criticism of numerous and various onlookers, and the quaint-looking fisherwomen, whose privilege it is to deal with the luggage, are quickly on board, as well as the custom-house officers. Refreshment can be had at the excellent new buffet, close to the landing-place, alongside which the train for Paris will be found waiting. In 1875 there were 110,419 passengers conveyed by this route. In 1876 the South Eastern conveyed 23,632,136 passengers, exclusive of 9439 holders of season tickets. The total income for that year was £1,916,757. The head offices are at London Bridge Station.

The London, Chatham, and Dover started in 1853 with a line from Strood to Canterbury, with branches to Faversham Quay. In 1855 the line from Canterbury to Dover was authorized. In 1859 the name was changed from "East Kent" to "London, Chatham, and Dover." Extensions subsequently made give this company a total of 159 miles of line. The principal stations of the company are Ludgate Hill, Holborn Viaduct, and Victoria, at the latter being the head offices. Its lines provide railway accommodation for the north coast of Kent, and the best communication between London and Margate and Ramsgate. A new route to the continent has been established *viâ* Queenborough and Flushing. This company carries perhaps twice as many passengers by the mail route *viâ* Dover and Calais to Paris, as are conveyed by any other route. The trains and steamers leave at times from which there is no variation. For instance, according to the service for October, 1877, the night train leaves Ludgate Hill Station (which is in direct communication with the North of England) at 8.18 p.m., arriving at Calais at about 12.10 a.m., after a sea passage of about an hour and a half. From Calais, the traveller can economize time by availing himself of the sleeping cars provided by the Northern of France Railway, and will arrive at Paris at 6.20 a.m., in good time for breakfast. For commercial men this is, of course, an admirable arrangement.

As already stated, Scotland had on the 1st of January, 1876, 2726 miles of railway. One of the

most important lines is the Caledonian, 829 miles in extent. Commencing at Carlisle, this line runs to Edinburgh, Glasgow, and Greenock; from the latter place there are steamers to Dunoon, Rothesay, etc., and to Inverness *viâ* the Caledonian Canal. Proceeding north through Stirling, the Highland Railway is joined at Perth. Still northward, the line runs to Dundee, Montrose, and Aberdeen; from thence a branch of the Great North of Scotland extends to Ballater, the nearest railway station to Balmoral Castle, the Scotch residence of her Majesty the Queen. In connection with the London and North Western, at Carlisle the Caledonian conveys the royal mails. In 1876, 14,183,126 passengers were conveyed, exclusive of season ticket holders, and the total receipts amounted to £2,936,587.

The North British has 851 miles of line. The receipts for 1876 were £2,262,891, and the number of passengers conveyed 14,427,452, in addition to 14,030 holders of season tickets. This company's territory comprises Roxburgh, Falkirk, Peebles, Berwick, Haddington, to the farthest point of Dumbarton, and eastward through Fife; thence, across the Tay Bridge, referred to in a previous chapter, to Dundee. This company competes with the Caledonian between Edinburgh and Glasgow. The North British line is used for the celebrated Pullman service of the Midland between London and Edinburgh and Glasgow.

The Highland Railway consists of 402 miles of line. In 1876, 1,362,269 passengers were conveyed,

and the total receipts amounted to £363,417. Starting at Perth, this line runs to Inverness (144 miles), thence *viâ* Invergordon to Bonar Bridge. This company works the Duke of Sutherland's Railway between Culrain and Helmsdale, and the Sutherland and Caithness Railway, which extends northward to Wick and Thurso, the nearest railway approach to John-o'-Groats.

The Glasgow and South Western has a territory extending over 317 miles. Commencing at Carlisle, the line runs to Dumfries, thence south-west to Kirkcudbright; proceeding northward, it goes to Girvan, Ayr, and Kilmarnock, thence to Glasgow and Greenock. The receipts in 1876 amounted to £1,006,509, and 5,958,022 passengers were conveyed.

The Great North of Scotland line comprises a length of 286 miles. Commencing at Aberdeen, the lines run to Peterhead, Fraserburgh, Macduff, Keith, etc. 1,930,335 passengers were conveyed in 1876, and the total receipts amounted to £284,728.

The railways of Ireland are 2157 miles in extent, more than half being in the hands of three companies. The Great Southern and Western, with 485 miles of line, and Dublin as a starting-place, runs in a southerly direction to Limerick, Cork, and the Lakes of Killarney, with branches to Kilkenny, Athlone, etc. In 1876, 2,297,182 passengers were carried, and the total receipts amounted to £744,784. The Great North of Ireland is an amalgamation of the Dublin and Drogheda, Dublin and Belfast, Irish North Western, and the Ulster Railway, and its total length is 485

miles. In 1876 the receipts amounted to £620,844, and 3,494,437 passengers were conveyed. The Midland Great Western has 415 miles, and runs through the centre of the country, from Dublin to Galway, Sligo, and Westport in the extreme west. Number of passengers conveyed in 1876, 1,038,096; total receipts, £497,829. The line from Waterford to Limerick, 202 miles in length, is an important one. This company receives at Waterford a large English traffic for the South of Ireland from the Great Western Railway of England at New Milford. The other principal connections with England are—at Cork from Bristol and Liverpool, at Dublin from the London and North Western at Holyhead, at Belfast from the Midland at Morecambe, and North Western at Fleetwood. The working of the Irish railways has in recent times met with more satisfactory results. As an example of this, it may be stated that at the half-yearly meeting of the Midland Great Western Railway, held in September, 1877, it was stated that the returns showed an increase of £9957, and that for the English and Scotch markets 19,425 more pigs and 8000 tons more of potatoes had been conveyed than in the same period of the previous year, and a dividend of 5 per cent. was paid.

In examining a Bradshaw's map of England, we are induced to ask to what may be attributed the remarkable manner in which railways are spread over the country, and how it is that the lines of one company cross and recross those of other companies. It must be remembered that many of the short lines have been made to enable one railway to compete

with another, and that originally the lines belonged to a number of small companies. Moreover, when these were made there were few anticipations as to through communication. Some explanation for the circuitous route taken by some lines may be found in the fact that the opposition to their construction was so powerful as to produce a considerable deviation from what would have been in many cases the most advantageous route. In the making of our railways the original object has been rather to serve local interests, than to advance the national welfare of the country. It is, nevertheless, remarkable how in the course of time, by adding a bit of line here and a bit there, through and direct communications have been effected between all our great centres of industry.

CHAPTER VIII.

SIGNALS—THE BLOCK SYSTEM—CONTINUOUS BRAKES—ACCIDENTS—PULLMAN CARS—INSURANCE AGAINST ACCIDENTS.

In the first instance railways were worked without fixed signals. On the original Stockton and Darlington, for example, and other lines, the signalling of trains was carried on by the motion of the hands and arms of the station officials, assisted by the use of flags—a white one to indicate "all right," a green one to indicate "caution," and a red one to indicate "danger." As traffic increased, the necessity for some more effective system was manifest, and some attention was paid to the subject by the Liverpool and Manchester Railway Company in 1834; but it was not until the year 1838 that any decisive step was taken. As time went on, the plan of signalling developed into the use of the well-known semaphore signal and the auxiliary or distant signals, similar to those now in use on the principal railways. The semaphore is the signal used at stations or junctions.

It is fitted with arms, one for the up and one for the down line. Amongst railway men there is some contention as to the way in which these should be worked. Generally, however, if the arm which is painted red is raised to the full extent, *i.e.* at a right angle, it forbids the passing of any train. If the arm is lowered half-way, *i.e.* at an angle of forty-five degrees, the driver of a train knows he may proceed cautiously; if the arm is folded close to the body, so to speak, he knows that he can proceed at the usual speed. It is contended by some that this mere absence of the signal to indicate "line clear" is open to objection, inasmuch as through accident, such as the giving way of a single bolt, perhaps, or the action of the wind, the arm might fall, with the possibility of serious results. The auxiliary signals are erected some hundreds of yards from the stations, at a distance and in a position varied according to circumstances. They are connected by wires with levers in the pointsman's box, and by the use of these levers the signals can be made to indicate "line clear" or "danger," as occasion requires. At night, as everybody knows, lights of different colours are used—red for "danger," green for "caution," white for "line clear."

The importance of efficient signals cannot be estimated too highly, for upon their proper working the safety of life and property greatly depends. The railway companies have, especially during recent years, paid a considerable amount of attention to this matter, and have expended large sums of money

in the introduction of improvements. What is called "the block system" would seem to be as perfect a mode of signalling as mechanism can produce. It will not be out of place, perhaps, to attempt to give some description of its operation. The system provides that no two trains shall be between any two points, where the block signals are worked, at the same time on the same line of rails. The distance between the signal-boxes is regulated according to the amount of traffic to be worked. It will readily be understood that on the Metropolitan Railway, where the trains follow each other so quickly, it is necessary to have the pointsmen's boxes very close together; whilst on the Great Northern Railway, for example, there are intervals of two or three miles. The signal-boxes, or block stations, are provided with two telegraph instruments, one for the "up" line, and one for the "down" line. Each instrument is fitted with a bell, which is used for one signalman to call the attention of another, and, by giving a certain number of beats, to indicate the signal to be conveyed. The telegraph instruments used for signalling purposes, with one dial and a single needle, need very little description. As is well known, the manipulations performed upon the needle repeat themselves on all other instruments which may be connected therewith.

The system adopted by the Midland is one of the most perfect, and we will therefore give the following from the company's regulations, as the best means of illustrating the course adopted:—

To indicate—

"Be ready for passenger train"	Two beats of the bell are given.
"Be ready for goods train"	Three „ „
"Train on line"	Four „ „

Many other signals can thus be made, their nature being indicated by the various number of beats given by the bell. Then the ordinary instrument is called into use, certain regulations being laid down as to movements or positions of the needle to indicate the message to be conveyed. If the needle is fastened or "pegged" over to one side, it may show "line clear;" to the other side, "line blocked," etc. It is, of course, absolutely necessary that very careful and steady men, having their wits about them, should be selected for this work, and the companies go to great pains in this particular.

The following is an outline of the *modus operandi*:—

A, B, and C are supposed to represent three block posts, and the process of signalling is thus carried on. On the approach of a train to A, the signalman will call the attention of B, and then give the BE READY signal on the bell, and the proper TRAIN APPROACHING dial signal. The signalman at B, after having ascertained that the line is clear for the train to run upon, must repeat the signals, and when he has received the necessary intimation from A that he has repeated them correctly, he must peg the needle to LINE CLEAR. As soon as the train has passed A, the signalman there must give the bell signal TRAIN ON LINE to B, and the signalman at B must acknowledge the signal and unpeg the needle. The signalman at A must

then give to B the proper TRAIN ON LINE dial signal; and when the signalman at B has acknowledged that signal, and received the necessary intimation from A that his acknowledgment is correct, he must peg the needle over to LINE BLOCKED, and then call the attention of and give the BE READY and TRAIN APPROACHING signals to C. As soon as the train has passed B, it must be signalled in a similar manner to C, and the signalman at C must in like manner forward the BE READY and TRAIN APPROACHING signals to D. When the train has passed B, the signalman there must call the attention of A, and give the proper signal indicating that the line is clear of the train, which must be duly acknowledged by the signalman at A, and so on throughout the block. To an outsider this may seem not very explicit; sufficient perhaps, however, to convey a general idea. Probably in the immediate future we may anticipate the adoption of the telephone or speaking telegraph, for the purposes of signalling.

In very foggy weather explosive signals are used. Under these circumstances, a man is stationed at such a distance from the ordinary signals as will enable him to distinguish their movements. When a train approaches, he fixes one or more of the signals on the metals, according to the nature of the signal he wishes to convey to the engine-driver.

Signals are also conveyed by the number and position of lights fixed on the engines and on the rear of the trains; and the number of whistles given by the engine-driver on approaching junctions indicate on which line the train is intended to go. A mode of

communicating with the signalman is in use at the New Street Station, Birmingham, which dispenses with the not always agreeable railway whistle. Telegraph wires are laid down from the departure platform to the signal-boxes. The apparatus for conveying the signal is kept in a box at the station, the platform inspector having the key. When the train is about to start the inspector signals the fact, and at the same time announces the direction and character of the train. The train is not allowed to proceed until the signalman telegraphs that the line is clear, and then off it goes.

The construction of points, by which trains are turned to or from different lines, has undergone great changes. Some years since, it was necessary for the pointsman to go to every set of points during the shunting or passing of a train. It was no unusual thing for him to have to hold over, simply with the weight of his own body, a set of facing points within a few feet of a train whilst it was passing at the rate of twenty or perhaps thirty miles a hour. Arrangements have, however, now been made by which a pointsman can work almost any number of signals, and as many sets of points, from the elevated signal-boxes which have now become so familiar to railway travellers.

The interlocking of points and signals has been introduced during the last few years; Mr. Saxby, of the firm of Saxby and Farmer, the noted railway signal manufacturers, being the original inventor of the system. By this plan the signals and points are made to work simultaneously. It has been so con-

trived that the points are wedged firmly and immovably in the position indicated by the signal; and whilst a train is actually passing through the points, it is itself master of the situation. Not even the signalman can, either intentionally or inadvertently, change their position or disturb them until the whole of the train is safely past. Mr. Farmer, of the firm above mentioned, in his evidence before the Select Committee on railway accidents, 1873, said; "The simple principle is that the movement of the point lever is made to dominate and control all the signals. You never move the point lever to set the points without doing something beyond; that is to say, releasing the signal which ought to be released, and locking the signal which ought to be locked." The system is now in extensive operation, and its introduction is gradually being increased. It is enforced by the Board of Trade at all new junctions.

It will give an idea of the work carried on in one of the signal cabins when it is stated that an apparatus made in 1873 for the Waterloo Bridge Terminus, London, comprises 100 levers.

The question of continuous brakes, as another means of conducing to the safety of railway passengers, has long engaged the attention of engineers. With trains running at such high speeds, and with constantly recurring accidents, which might have been prevented with more effective and speedy means of control, the matter has forced itself upon the attention of the Government and of the railway companies. During the years 1876 and 1877, as well

as previously, important trials of brakes were conducted by some of the principal railway companies, notably by the Midland at Newark, and the North Eastern at Newcastle. After the most exhaustive experiments, it has come to be acknowledged that amongst the best are the Smith vacuum brake, and the Westinghouse automatic brake, the latter being extensively used in America. It will be of interest to note the result of a comparative trial of these two brakes conducted in June, 1877. The experimental train comprised a North Eastern Company's express engine, with nine carriages and three vans. The figures given, as follows, are extracts from a statement given in *Engineering*, July 6th, 1877, showing the results of twelve stoppages :—

Speed of train in miles per hour.	Time in seconds taken to make stop.	Distance in feet run after application of brakes.	Gradient on which stop was made.	Distance in feet run with speed reduced to fifty miles an hour.
SMITH VACUUM BRAKE.				
46½	18½	827	1 in 381 falling	956
52½	18	975	1 in 4537 falling	884
61	25	1355	1 in 170 falling	910
WESTINGHOUSE AUTOMATIC BRAKE.				
47½	16	640	1 in 381 rising	709
52½	16¼	690	1 in 264 falling	626
64	20	1294	Level	789

The above will give a general idea of the facility for stopping afforded by these continuous brakes, as well as the comparative merits of the two plans. Notwithstanding the constantly recurring accidents, involving great loss of life and property, the introduction of safety appliances has proceeded very slowly. The experimental stage as to continuous brakes seems, however, to have passed, and there should now be no further delay in carrying out their general adoption.

The chapter of accidents for the year 1876 is rather a long one, and indicates certain directions in which improvement is still needed. According to the report of the Board of Trade, 1245 persons were killed and 4724 injured. Of these, 139 persons killed and 1883 persons injured were passengers. Railway servants are the greatest sufferers under this head, of which there were 673 killed and 2600 injured. Amongst the latter might be included many other cases not reported. Of the remainder, 433 killed and 241 injured were trespassers, or suicides, or others who met with accidents at level crossings, etc. Of the passengers, 38 were killed and 1279 injured from causes beyond their own control. These figures show 1 in 3,872,570 passengers to have been killed and 1 in 285,867 injured. There are about 280,000 servants of the railway companies; the proportion of killed was thus about 1 in 416, and injured 1 in 86. The most serious accidents were those on the Great Northern at Abbott's Ripton, by which thirteen passengers were killed; at the Foxcote

signal cabin, between Radstock and Wellow on the Somerset and Dorset Railway, by which twelve passengers were killed; at the Arlesey siding station, Great Northern Railway, by which four passengers were killed. It is said that in connection with the Abbott's Ripton accident alone, the Great Northern Railway paid £100,000 as compensation for personal injury. Out of 149 accidents to trains which were the subject of inquiry, 50 per cent. were cases of collision; 21 per cent. from passenger trains being wrongly turned into sidings or through facing points, 15 per cent. from engines or vehicles meeting with or leaving the rails in connection with defects of or obstructions on the permanent way, 8 per cent. from boiler explosions or failure or defects of rolling stock, and 3 per cent. on inclines. Forty-nine investigated accidents of collision within fixed signals, at stations and sidings, caused the death of 20 passengers and 6 servants of the companies, and injury to 561 passengers and 41 servants of the companies. This is the most serious class, containing 34 per cent. of the 149 investigated train accidents, and accounting for more than half of the passengers killed and injured in such accidents. There were 41 cases of negligence or mistake on the part of officers or servants; 16 cases of defective system for securing intervals between trains, or want of the block system; 17 cases of defective arrangements of signals or points, or want of locking apparatus or safety points; 16 cases of insufficient accommodation in lines or sidings; 15 cases of inadequate brake power, etc.

Amongst the most recent and most valuable additions to railway rolling stock are the Pullman drawing-room and sleeping cars. Reference is made to these in the present chapter because it is considered that by the use of such vehicles the danger to passengers in case of accident is diminished. An accident occurred to a Pullman train on the Midland Railway, near Sheffield, in November, 1876. In his report upon this, the Government inspector, Captain Tyler, said: "The employment of vehicles of this description tends materially, in proportion to their strength, to diminish the danger, when accidents occur, to passengers riding in them." It is very singular that a somewhat similar accident was met with not far from the same place as that named above in December, 1877, and that on this occasion the same car—the "Australia"—which was in the accident in November, 1876, was on the train. In both instances the passengers in this car escaped with a shaking, whilst passengers in other carriages were seriously injured.

The first car of this description was made by Mr. Pullman, in 1859, for use on the Chicago and Alton Railway. In 1864 the "Pullman Palace Car Company" was organized, to contract with railway companies for the use of the cars. They were introduced into Europe about the year 1873. About this time Mr. James Allport, the general manager of the Midland, was on a visit to America. He had occasion during his tour to travel in one of these cars for some thousands of miles, and so favourably was he impressed with the accommodation and comfort afforded that he

resolved, as soon as he arrived at home, to arrange for their introduction on the Midland system. The first train with Pullman cars was started from St. Pancras Station, London, on February 20, 1874. At the present time the Midland attach these cars to their trains between London and Edinburgh and Glasgow, London and Nottingham, Liverpool and Manchester, and between Birmingham and Leeds, and Birmingham and Bristol.

A short description may be interesting. Each car has a body 51 ft. 6 in. long by 8 ft. 10 in. wide outside; the width inside is 8 ft. 2 in; the height inside at the centre, 8 ft. 6½ in. It is carried on two four-wheeled bogies, or trucks, which are 41 ft. apart from centre to centre. The drawing-room car is fitted with a lavatory and water-closet, and the main saloon contains eighteen chairs, mounted on plated standards, and these seats can be made to face the window or towards the centre of the car, as may be desired. The car is warmed by hot-water pipes, supplied by a heater. The sleeping car is somewhat differently fitted up. It contains a ladies' dressing-room. Sixteen beds are provided in a main compartment, and six in two private compartments. The cars are elaborately fitted up, almost regardless of expense. The seats are of Utrecht velvet, the floors are well covered with carpet, the panels and moulding are of walnut, most of the metal work being nickel-plated. It is said that each car weighs about nineteen tons when empty. The cars are efficiently lighted, and are remarkable for smooth running.

After thus, to some extent, diverging from the subject, we come back again to the question of accidents, by referring to the work of the Accidental Assurance Companies. The most important of these is the Railway Passengers' Assurance Company, 64, Cornhill, London, established in 1849, with premiums, etc., as follows :—

Annual premium.		Sum insured in case of death.	Compensation.	
Class 1.—Ordinary risks.			Weekly allowance for total disablement by injury.	Weekly allowance for partial disablement.
Total disablement.	Total and partial disablement.			
£ s. d.	£ s. d.	£	£ s. d.	£ s. d.
0 10 0	0 12 0	100	0 15 0	0 3 9
1 0 0	1 5 0	250	1 10 0	0 7 6
1 15 0	2 5 0	500	3 0 0	0 15 0
3 0 0	4 0 0	1000	6 0 0	1 10 0

For these premiums not only railway accidents, but accidents of all kinds, are insured against. Policies of insurance are also issued for risks by railway only. Thus, to insure £1000 in case of death, with a weekly allowance for personal injury of £6 during total, and £1 10*s.* during partial disablement, the premium for twelve months is £1.

The system of insuring for each journey is conducted at almost all the railway stations on the leading lines in England, Scotland, and Ireland by the traveller taking an insurance ticket from the booking clerk (who is authorized by Act of Parliament to issue it as an agent of the company) at the time

of taking the railway journey ticket. The terms upon which these tickets are issued are as follows:—

Premium.	Class of carriage.	Sum payable in case of death.	Weekly allowance for total disablement by injury.	Weekly allowance for partial disablement by injury.
3*d.*	First	£1000	6 0 0	1 10 0
2*d.*	Second	£500	3 0 0	0 15 0
1*d.*	Third	£200	1 5 0	0 6 3

Return tickets are issued at double these rates. During twenty-eight years ending December, 1876, this company issued 12,544,171 of these journey insurance tickets.

The following is a return of the insurance tickets issued at the railway stations during the year 1876:—

Single journey tickets.			Double journey tickets.		
1st class.	2nd class.	3rd class.	1st class.	2nd class.	3rd class.
72,316	64,713	533,034	46,633	44,339	124,891

The following are extracted from the list of claims paid in 1876:—

Occupation.	Residence.	Nature of accident.	Compensation.
			£ s.
Merchant	Port William	Collision at Tebay Junction	1000 0
*Lady	Brighton	Collision near Birkenhead	156 0

* First-class double journey ticket, sixpence.

Occupation.	Residence.	Nature of accident.	Compensation.
			£ s.
Commercial traveller	Ashton	Collision	250 0
Commercial traveller	Manchester	Collision at Abbott's Ripton	156 0
Gentleman	Darlington	Collision at Abbott's Ripton	156 0
Contractor	Bolton	Collision	109 10

The Ocean, Railway, and General Accident Assurance Company, Mansion House Buildings, London, is another important medium for insurance against accidents of all kinds. The fact that this company's policies are issued at Thomas Cook and Sons' tourist offices in different parts of the world, is a good guarantee that the business is conducted upon a substantial basis.

CHAPTER IX.

GAUGES—FESTINIOG RAILWAY—TRAMWAYS, ETC.

THE question of the most suitable gauge for our railways was a matter which for many years gave rise to much public discussion, and considerable contention on the part of engineers. The gauge which, with one or two exceptions, is now generally in use, viz. 4 ft. 8½ in., had its origin in the old tramroads which were made in the North of England. The Liverpool and Manchester Railway was laid down with this gauge, as were also the lines connected therewith made subsequently. Mr. Brunel, when projecting the Great Western line, was not satisfied with this width, which had been sanctioned by Stephenson, and fixed upon a much broader one. Before the Great Western Bill passed the House of Commons, witnesses for and against the introduction of the new gauge were heard, and unfortunately, as results have testified, Mr. Brunel's views prevailed. A few others followed in the same direction. On the Eastern Counties' original line 5 ft. was the width chosen. On the recommendation of Mr. Robert Stephenson,

this was subsequently altered to secure uniformity with other railways. In Ireland it was thought that a wider line would be an improvement, and in one case a width of 6 ft. 2 in. was adopted; another was laid down 5 ft. 2 in. in width. The Irish gauge subsequently agreed upon as the best was 5 ft. 3 in.

The contest in this country between the rival parties as to gauges was a long and expensive one. The Great Western Company persisted in the superiority of its broad gauge, and traders soon found out the evil effects which it produced. The delay and risk, both as to the loss and damage of goods, in consequence of the break of gauge at Gloucester, resulted in the holding of a public meeting at Birmingham in 1844, to protest against what was termed "a commercial evil of the first magnitude." Thus commenced the "battle of the gauges," one of the most eventful epochs in the history of our railways. As everybody knows, the Great Western Company, for its own interests no less than for the interests of the public, went to the great expense, a few years ago, of laying down a considerable length of its line with narrow in the place of the broad gauge, and, of course, made a corresponding change in rolling stock.

We have at the present time arrived almost at uniformity in England in regard to this question, and the facilities thus afforded for the conveyance of merchandise from one end of the country to the other without change are of inestimable value and importance. But is there not another side to the

question? There are many parts of the country without railway accommodation from the fact that the outlay necessary to construct a line as railways are now made would be too great to warrant such undertakings. Indeed, many of the existing short branch lines are quite unremunerative, and swallow up some of the earnings of more successful lines. We may rest and be thankful that the "battle of the gauges," in the general acceptation of the term, has ended; but there are important districts where now the carrier's one-horse cart forms the chief means of conveyance, and in order to provide such districts with better facilities for transit of passengers and merchandise, the question naturally arises whether it is not possible to make much cheaper railways.

The cheapest railway in the world is said to be at East Frisia, in Germany. The line is five miles in length, and the gauge is 2 ft. 5½ in.; the rolling stock consists of two engines, three passenger carriages, two goods vans, and four open trucks. The locomotive weighs seven and a half tons, loaded with fuel (peat) and water. The carriages each accommodate twenty-eight passengers. The working staff consists of an engine driver, fireman, guard, and platelayer, their total wages being thirteen shillings per day. The passenger fares are sixpence first class, and fourpence second. The charge for a cow is one shilling, sheep and pigs threepence each, and two shillings per ton for general goods.

We have become so inured to the existing system that no other seems to be dreamt of. It would seem, however, that the question will ere long need re-consideration, and that the introduction of some less costly mode of communication will be needed to meet the ever-growing wants of the community. The Festiniog line in North Wales, which has been in existence many years, may be taken as a model in this respect. Originally, this was intended only for the conveyance of slates to Portmadoc; it has, however, for some years been utilized as a means of carrying passengers. It may give some idea of the construction of this railway, if it is stated that the lines are two feet wide, the cars are ten feet long, six and a quarter feet wide, six and a quarter feet high, and will accommodate ten passengers, who sit back to back along the middle of the carriage. The engine is, of course, of proportionate dimensions. This lilliputian railway forms a great attraction to the tourist in North Wales, for, in addition to the enjoyment of the ride on this novel line, the scenery through which it passes is amongst the finest in the kingdom. There are many places at present far from a railway to which such an iron road would be of immense advantage.

Inventors have not been idle in other directions. Some few years since there was introduced what may be termed an *overground* railway. This is known by the name of Wire Tramway, and the plan certainly possesses one great advantage, viz., the smallness of the outlay necessary to its construction. It consists

of an endless rope in two lines, forming the up and down road. This rope is supported on a series of pulleys attached to substantial posts, and at one end of the line is placed a drum round which the rope is made to revolve, either by steam or water power. Cars are firmly attached to, or rather suspended from, the rope, and an ingenious contrivance is provided which enables the cars to pass the posts with ease as well as with safety. This overhead system of locomotion is found very useful at quarries for conveying material to the railway stations. When the system has been brought to perfection, and safety tolerably certain, we may expect to see passengers carried in this way.

So long as fifteen years ago a pneumatic railway was invented by F. W. Rammell, C.E., and was tried in Battersea Park, London. Subsequently an experimental line was made and worked in the Crystal Palace grounds. Success was not the result; not, however, it is alleged, because of any fault in the mechanical principles involved. The *Engineer* of June 29, 1877, in referring to the subject, says: "There is no doubt Mr. Rammell can blow a train loaded with passengers through a tube, say a mile long, with ease, certainty, and economy, while the passengers will travel with comfort as regards ventilation, quite unknown on the steam-worked underground railway. There seems a probability that the plan will ere long be in practical working." Early in 1877 it was proposed to construct

a pneumatic railway between the South Kensington Station, London, and the Albert Hall. The *Engineer* thus describes the plan:—"The train will be blown through the tube by an injector, in other words a great centrifugal pump, 24 feet diameter, and worked by a pair of condensing engines exerting about 170 indicated horse power. The train will consist of six carriages, of very light build, the rail gauge being four feet. The train will hold 200 passengers, and the total load will be 32 tons."

One of the latest schemes is a suspension railway, the one we refer to being the invention of Mr. G. Stephenson, of Wantage, Berks. The cost is estimated at £2500 per mile. The mode of construction proposed is as follows:—The rails are to be supported by strong wrought iron clips, suspended from brackets projecting from upright columns or pillars fixed on the outer edge of the pavements, or streets, or by the side of highways, or from archways, joists of buildings, or other places as desired, while the engines and carriages are also suspended from the rails by means of steel carrying-rods descending from the axles of small travelling-wheels. The great feature consists in the formation of the permanent way, which is to be so constructed that the rails, and the timbers or trellis-work girders carrying the rails, are placed so near together that only room is allowed for the free passage of the wheels and carrying-rods between them. The advantages claimed are that the roadway would not be cut up, and that the resistance to

draught would be materially reduced. It has been decided by the authorities at Liverpool to construct an overhead railway to run down by the side of the docks.

The tramway system is now engaging much public attention. As an auxiliary to railways it is competent to occupy a very important position. Tramways are now rapidly extending in London and some of our large provincial towns. There is abundant room for expansion, and the cost of construction is comparatively small. Hence there seems no sufficient reason why tramways should not be introduced into many of our important villages, where great inconvenience is experienced through lack of adequate carrying facilities.

The General Tramways Act was passed in 1870, and down to June, 1876, Parliament had authorized the making of 317 miles. At the commencement of 1877, tramways extended through 135 miles of streets in England, 50 miles in Scotland, and 27 miles in Ireland. The greatest length is the North Metropolitan, comprising 30 miles of street, the longest run being about 6 miles. On many of the lines passengers are conveyed at about one halfpenny per mile. Mr. Paterson, secretary to the Edinburgh Street Tramway Co., in his evidence before the Select Committee of the House of Commons, said that 34,000,000 passengers had been conveyed, and that accidents were very few. As the result of casualties only seven persons were killed.

The following figures give an idea of the work performed by six of the principal companies :—

Company.	Passengers half year ending Dec. 31, 1876.	Passengers half year ending Dec. 31, 1877.	Increase.
Dublin . .	3,169,045	3,215,753	46,708
Bristol . .	1,193,156	1,527,628	334,472
Glasgow . .	15,451,350	17,094,451	1,643,101
Liverpool .	6,734,410	6,764,540	30,130
London Street .	2,838,281	2,948,455	110,174
North Metropolitan	13,789,270	14,303,053	513,783

Steam has been authorized as a motive power, and in one or two cases is now in operation. But there is some opposition to its introduction, as there is in connection with almost every other improvement attempted. It is said, for instance, that the steam will frighten horses. Mr. Hughes, a well-known engine manufacturer, was examined before the Select Committee already alluded to, on this point, when he said he had made the experiment with a troop of dragoons in Edinburgh, and arrived at the conclusion that about one horse in 200 was alarmed. Engines are made in which neither the steam nor the smoke emitted occasion the outside passengers any annoyance. The amount of noise is also reduced to a minimum. Mr. W. B. Adams, the celebrated inventor and engineer, gave it as his opinion before the Select Committee of the House of Commons, 1859, that "the startling horse is simply a wild beast, and no one has a right to bring a wild beast into the streets or roads.

What grooms call 'a fool of a horse' is not worth keeping, and every horse worth keeping is worth educating."

As the benefits to be derived by an extension of the system are very great, and as investments in tramway companies are considered sound and remunerative, we may expect and hope for considerable development. The strength of the movement in this direction is indicated by the fact that bills have this year (1878) been deposited in Parliament for the construction of tramways in no less than forty-five districts, including such places as Derby, Aberdeen, Bradford, Cheltenham, Gloucester, Reading, etc.

CHAPTER X.

RAILWAY TICKETS.

When iron roads were in their infancy the ticket system was a most cumbersome one; every passenger was supplied with a paper ticket, upon which the booking clerk had to write the date and name of the station, at the same time retaining a counterpart of such ticket to enable him to keep a correct account of the money taken. The system now in use was invented many years ago by Thomas Edmondson, who was employed at a station on the Newcastle and Carlisle line. In the course of his duties he found it very irksome to have to write on every ticket he delivered, and perceived how much time and trouble might be saved by the use of some mechanical method. One day, as he was walking in a field in Northumberland, the idea struck him how tickets might be printed with the names of stations, the class of carriage, and consecutive numbers in one uniform arrangement, and he soon set to work to carry out the invention. A machine was constructed for the manufacture of the tickets, and with the new mode of production it

was soon found easy, with one pair of hands, to print two or three hundred tickets per minute.

At the present time the machinery in use for making railway tickets is almost perfect, and its capacity for manufacturing large numbers most marvellous. One of the principal firms engaged in ticket-printing is Messrs. Waterlow and Sons, London. For the following description of the *modus operandi* employed, we are indebted to an article in *Chambers's Journal*, 1877, p. 140:—Cardboard for tickets is made of a slightly spongy texture, well fitted to take paste. It is known technically as "middles," and is the foundation for two external surfaces of paper, white or coloured as the case may be. The primitive paste-brush has long been discarded. A cleverly constructed machine pours out a stream of paste on two rollers, under or over which pass two sheets of paper, each of which becomes thoroughly pasted on one side. These are then quickly applied to the surfaces of the middle. Thirteen sacks of flour per week are used in the shape of paste. After pasting, each sheet of cardboard, large enough for 125 railway tickets, is, with others of the same kind, subjected to flat pressure, rolling pressure, and heat, until the surface papers are firmly and smoothly attached to the "middle;" they are then dried in heated chambers. Cutting machines sever the sheets into single tickets, the well-known railway ticket size, all precisely alike in dimensions.

The process of printing is very ingenious. Some five hundred blank tickets are placed in an upright tube, with just room to sink down readily. The

bottom of the tube is open, allowing the lowermost blank to rest upon a flat metal plate. A slider with a rapid reciprocating horizontal motion strikes the lowermost blank dexterously aside to a spot where it can be printed on the back with "cautions to the public," etc. Another sharp stroke drives the blank further on, where the printing of the front is effected. When printed on both sides it is struck onward again, and comes underneath an exit or delivery tube, up which it is driven by a series of jerks. For *numbering* each ticket a peculiarly constructed wheel is used, which changes its particular digit every time a new blank is presented to it, and thus the consecutive numbers are produced on a series of tickets with unerring accuracy. A tell-tale index and a tell-tale bell, both automatically worked, give information as to the number of tickets printed. As errors may possibly occur, all the tickets in one series are passed through a test machine, which reveals at once any mistake as to number which may have taken place. Messrs. Waterlow send out about 650,000,000 tickets annually.

Having thus referred to the origin of the existing system, and briefly described the mode of manufacture, it will not be out of place to relate how the tickets are dealt with by the different railway officials through whose hands they pass. At the head-quarters of each company it is, of course, necessary to keep a sufficient store to supply the wants of every station. At stated periods the clerks in charge of stations send a requisition for such tickets as will enable them to

meet every requirement of passengers. These tickets are numbered from 0 to 10,000, and are sorted with the utmost care. As the booking clerk has to account for every ticket as so much money, it will readily be understood with what vigilance the tickets have to be counted, and how necessary it is to watch lest any of them should be misplaced. A general stock of tickets is placed in drawers according to their consecutive numbers, while those for immediate use are placed in cases containing a number of compartments in the order of stations and classes, the lowest number being put at the bottom. The compartments are placed in rows, or subdivisions, and under each row a piece of slate is fixed, on which is inserted the number of the ticket next to be issued. The bottom ticket in each compartment is made to project, so that after the departure of any train the clerk can see at a glance to what stations tickets have been issued. When the booking for a train has been completed, the names of the stations to which passengers have taken tickets are written in a book, and the numbers are arrived at by deducting the numbers on the slates from the next numbers to be issued. At the expiration of every month a return of all tickets sold has to be sent to the accountant's department. In order that this return may be correctly made out, a record is taken of the next or closing numbers of the tickets to be issued on the last day of every month, and these figures are the commencing numbers for the next account. For instance, suppose that on the morning of the 1st of July the next third-class ticket to be

issued from London to Leeds is numbered 500. If, on referring again, July 31, it is 950, it follows that 450 tickets have been issued.

We are all familiar enough with the process of examining tickets on starting and during railway journeys, and having to give them up at our destination. They are far from being done with, however, when they are delivered to the collectors, having yet to perform an important part in the settlement of railway accounts. At the close of every day all the tickets collected have to be arranged according to their respective numbers and stations, and are then sent to the head-quarters of the company for examination. These are compared with the return of tickets issued, and should one be missing an explanation is at once asked for. Those tickets, moreover, which have been used for travelling on two or more companies' lines, have to be forwarded to the Railway Clearing-house (to which reference will be made in a subsequent chapter), so that the proportion of the fare due to each may be duly allotted. A plan has been adopted at many important stations of impressing on the tickets certain numbers when they are examined by collectors, to denote the route by which the passenger has travelled. For instance, at the London and North Western station, Rugby, the figure 2 is used; at Shrewsbury, 4; at the Midland station, Gloucester, 19; Derby, 22; and so on.

CHAPTER XI.

TRAVELLING BY EXPRESS.

It is said that a journey round the city of Nineveh occupied three days. Great Britain in its longest dimensions can now be traversed in less than half that time. The extremities of the island are now, to all intents and purposes, as near to London as Surrey and Hertfordshire were a hundred years ago. Such is the rapidity with which we can now be transferred from one part of the country to another, that a trip of a few hours only is necessary to convey the traveller from Kent to Northumberland, from Norfolk to Anglesey, or from Devonshire to the Highlands. As an illustration, let it be supposed that we are at Penzance, near Land's End, and urgent business demands our being at Aberdeen, in the North of Scotland, with the least possible delay. We take our tickets, and start from Penzance by the Great Western train leaving at 10 a.m., passing through Plymouth, Exeter, and Bridgewater to Bristol, at which place, after twenty-one stoppages, the train is due to arrive at 6.45 p.m.

Having thus completed the comparatively slow portion of our journey, we join the Midland line, and

avail ourselves of the Scotch express, leaving Bristol at 8 p.m. A run of nearly forty miles without stoppage brings us to the fine old cathedral town of Gloucester; from thence we proceed through fashionable Cheltenham and Worcester to Birmingham; next comes Burton-upon-Trent, with its mountains of ale-casks in full view, and we arrive at Derby at 11.45 p.m. After a rest of ten minutes we proceed by way of Sheffield, Leeds, and Carlisle to Edinburgh, where we arrive at 7.45 a.m. Pursuing our journey, we leave Edinburgh at 8.30, passing Stirling Castle, Bridge of Allan, and Perth, arriving at Aberdeen at 4.5 p.m., after a journey of 800 miles, performed in about eighteen hours.

In the old coach times it would perhaps have taken half as many days to travel so great a distance, seeing that a hundred years ago there was only one coach in all Scotland in communication with London, that it set out from Edinburgh only once a month, and that the journey occupied five or six days—sometimes a week—according to the state of the weather.

Again, by leaving Euston Square, London, at 8.50 in the evening a passenger will arrive at Inverness at 2.45 p.m. the next day, having accomplished a journey of 600 miles in eighteen hours. The following will show the time occupied on the journey from London to Edinburgh, about 400 miles, by the great competing routes:—

Leave	Time.	Arrive at Edinburgh.
St. Pancras, Midland	10.30 a.m. ...	8.40 p.m.
Euston Square, London and North Western	10.0 a.m. ...	8.0 p.m.
King's Cross, Great Northern . .	10.0 a.m. ...	7.0 p.m.

Amongst many other instances of quick travelling may be mentioned London to Aberdeen (543 miles) in sixteen hours, London to Holyhead (260 miles) in six hours and forty minutes, London to Manchester (188¾ miles) in five hours, London to Plymouth (247 miles) in six hours and a quarter, Newcastle to Plymouth (428 miles) in fifteen hours and three-quarters.

"With parted nostrils, breathing flame,
Leaps forth the iron steed,
Rock, tree, and hamlet disappear
Before his whirlwind speed;
From rocky crags wild shrieks arise,
The mountain from his throne replies,
While o'er the peaceful plain
The browsing herd affrighted spring,
The birds ascend on rapid wing,
As rolls the pond'rous train."

Every possible effort is made to keep up the speed of express trains and to prevent delay, and we may here refer to the London and North Western Company's arrangement for supplying engines with water while at full speed, and which enables the Irish mail to run from London to Holyhead with only two stoppages, at Rugby and Chester.

A few years ago a very interesting table was published in the *Engineer*, giving an elaborate comparison of the times occupied by express trains on the nine great railways which have their termini in London, and the result of the whole statement is to show that the average rate of speed at which the quickest expresses then travelled—and the average is about the same now—on the main lines of railway is 47¾ miles

an hour, a pace which is probably at least ten miles an hour faster than that attained in any other country in the world. Indeed, there are two lines on which this pace is exceeded. The 10 o'clock Great Northern train from London to the North is timed in "Bradshaw" to arrive at Peterborough at half-past eleven. The distance is 76¼ miles, and the rate at which the train is actually timed to travel is 51 miles an hour. But the broad gauge West of England trains on the Great Western beat even the Great Northern. The train which leaves Paddington at 11.45 makes the run to Swindon, 77¼ miles, without stopping, and does the journey in three minutes less than an hour and a half. This really means an uniform pace of 53¼ miles an hour. The Great Northern express falls off in its pace after it has passed Peterborough, and the quickest train between Grantham and York travels at something under 45 miles an hour. The Great Western express does the 29½ miles from Swindon to Bath in thirty-four minutes, a pace equivalent to 52 miles an hour. The journey from London to Bath by the 11.45 train is, in fact, the quickest in the world. The distance is 106¾ miles; it is timed for two hours and thirteen minutes, including ten minutes' stoppage at Swindon. The actual time spent in travelling is, therefore, two hours and three minutes, which is something over 52 miles an hour.

There are parts of other lines on which this high rate of speed is nearly reached; but there are none in which it is kept up for any considerable distance. The South Eastern Railway has a piece of very easy

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line between Tunbridge and Ashford, and one of their trains is timed to travel over the 26½ miles in thirty-one minutes, equivalent to 51¼ miles an hour. The Midland attains its greatest speed on the piece of straight and level line between Leicester and Trent, where 20¾ miles are travelled in twenty-eight minutes, a rate of 44½ miles an hour. The London and North Western trains travel quickest on the line which runs along the Trent Valley from Rugby to Stafford, where 51 miles are accomplished in an hour and seven minutes, and one of the trains runs the whole 77½ miles from Rugby to Crewe in an hour and forty minutes, a pace of 45½ miles an hour. The 5 o'clock train on the London and Brighton line does the whole distance of 50½ miles in an hour and five minutes, a rate of 46¾ miles an hour; but this train actually travels just half a mile an hour faster than this after it has passed East Croydon. The South Western nowhere attains a pace of more than 43¼ miles an hour, and that only in the 40¼ miles between Salisbury and Yeovil, which the 2.10 train does in fifty-six minutes. As to the Great Eastern, 41 miles an hour seems to be its fastest.

CHAPTER XII.

PASSENGERS' LUGGAGE.

During the year 1876, 538,287,295 journeys were made by railway, besides those made by 394,427 holders of season tickets. A large proportion of passengers take something into the train, and many are accompanied by numerous packages of luggage of different sorts and sizes, in connection with which many have had experiences of no very pleasant sort. It will not be out of place to refer to the arrangements made by the railway companies as to luggage, and how it is dealt with by the passengers themselves. And first of all as to the terms upon which luggage is carried.

The weight of passengers' luggage allowed free of charge is generally—

For each	first-class	passenger, 120 lbs.
„	second	„ 100 lbs.
„	third	„ 60 lbs.

This regulation is in accordance with the special Acts of Parliament of the companies, which also provide that such luggage must not be merchandise

or other articles carried for hire or profit. When packages are of this nature, they are subject to a charge for the whole weight at a certain rate per pound, of which the following is an example :—

¼*d.* per lb. for any distance under 40 miles.
½*d.* „ „ „ over 40 „

The charge is increased to three farthings per pound, one penny per pound, etc., according to distance—the same rate applying to weights in excess of the allowances above quoted. Commercial travellers' luggage, when carried at their own risk, is conveyed at half the ordinary rates, and in their case the luggage can be booked through to the furthest station they intend visiting in one day.

Many of the companies have somewhat recently made arrangements for the collection and delivery of passengers' luggage in London as well as some country stations, a fact that is not perhaps yet sufficiently known.

The preparation for a journey, especially where ladies are concerned, is very often of a serious nature with regard to luggage. It would really seem that in many cases the object has been to see how many packages could be taken, rather than to reduce to a minimum the number and bulk of the articles. Were the question asked, What are the impediments to punctuality in railway travelling? it might fairly be answered that the quantity of luggage carried and the cumbrous system of dealing with it takes a foremost place. Passengers often fail to exercise the

ordinary precaution of addressing each package clearly and fully, and it can scarcely be matter for surprise if trouble and annoyance ensue. For example, there is the family of man and wife with half a dozen children, who have managed to arrive at some country station *en route* to the seaside, with at least one package of luggage for each individual, perhaps a dog into the bargain, when the train is due in three minutes. Meanwhile this miscellaneous lot of railway traffic has to be prepared for proper transit. Paterfamilias is, of course, in a state of excitement after the hurry and bustle of having superintended the safe storage in the train of the numerous items under his keeping, and no wonder should he fail to remember on his arrival at the next junction, or at his destination, either what part of the train his luggage is in, or how many articles it comprises. In the haste of preparation for the journey all the packages have not been addressed, and there was not sufficient time at the starting station for the railway company's labels to be properly attached. Such is a hypothetical case, a fair illustration of many practical experiences.

Most people, perhaps, are acquainted with the excitement which generally attends the sorting of pile after pile of luggage at some principal terminus. Take the arrival of a Scotch express at the Euston Square Station, London, during the height of the tourist season as an example. Immediately the train stops there is a general rush to the guard's van. Porters are shouting, "Claim your luggage! claim your luggage, please!" Of course each passenger

must be served first, the process of serving being regulated somewhat by the "tips" administered. Sometimes the porter gets not a little abuse, and if in return for a sharp rebuke he gives a sharp answer, one may well give him absolution. He cannot from the mere appearance of passengers be expected to recognize in them the social distinctions which their position elsewhere may warrant.

It will not be disputed that passengers' luggage, under the present system, forms no inconsiderable obstacle to comfort and expedition in travelling. It would be deemed presumption, perhaps, to attempt to induce passengers to lessen the number and bulk of their packages, but precautions may be used which would save considerable trouble. Of first importance is the necessity that each article should be plainly and fully addressed; when practicable, the name of the railway company and the route to be travelled should be inserted. On most railways labels with the destination printed are used. The omission on the part of passengers to remove these old labels not unfrequently gives rise to trouble. The passenger can thus by care and precaution do something towards relieving himself of anxiety, and the railway officials of a good deal of trouble, in connection with this department of traffic. But the question forces itself into notice whether the time has not arrived when the companies should inaugurate some new and more complete system.

Our American cousins have for years been setting us a good example in this respect, but as yet there

seems no disposition to profit by it. It has not been from a want of acquaintance with the advantage of the American system, for in almost every book on America, written by an Englishman, a prominent place is given to a notice of the great improvement upon the English system in regard to passengers' luggage. The following is a description of the American plan :—

"On arrival at a station you hand over your luggage to a 'baggage master,' who in a moment by a leathern thong attaches to each parcel a metal label, with a number and place of destination upon it; he hands you the duplicates, called 'checks.' After this the passenger need not trouble himself for one moment about his luggage; he may stop twenty times, say between Boston and Buffalo, and on his arrival he has simply to go to the baggage room, present his 'checks,' and get his baggage. Or he may save himself even this trouble; just before the arrival at any principal station, an official walks through the cars, asking—'Any baggage for (say) Chicago?' You give him your 'checks;' he gives you a receipt, asks what hotel or house you are for; you give him the name, go straight to your hotel, and in a few minutes you find your luggage in the hall. It is an immense improvement upon our clumsy system, especially for ladies." *

It may be hoped that ere long the English railway companies will introduce some such plan. The expense which would be entailed by the introduction

* "A Trip to America," by James Howard, Esq.

of such a system may possibly be urged by some as a reason for its non-introduction. This might fairly be met by a nominal charge per package for registration or for labelling with duplicates handed to the passengers. As trouble would thus be saved and safety secured, any reasonable charge that might be made could scarcely be objected to. It must be remembered that in connection with luggage the companies have in many cases more trouble than with passengers, and it seems somewhat anomalous that the cost for the conveyance of a passenger without luggage should be the same as for a passenger with two or three articles of baggage weighing 120 lbs. or more. In the case of special tickets for tourists, more particularly, some difference in the fares for passengers with and without luggage would be justifiable. In one case the passenger takes his ticket, walks into the carriage, walks out at the end of the journey, and gives up his ticket, when the contract with the railway company is completed. In the other case the passenger is treated in precisely the same way; but then there are his several articles of luggage, which have to be received at the starting station from a cab, then labelled, conveyed by a porter to a position on the platform ready for the train, loaded into the luggage van, unloaded and reloaded probably at some junction on the journey, unloaded again at the destination, and finally taken by a porter to a conveyance, into which it has to be reloaded.

Whilst the inefficiency of the present system is

generally acknowledged, the railway companies spare themselves no trouble to render every assistance to passengers. The daily record of complaints made at many large stations by passengers with regard to lost articles is frequently by no means a short one, having reference principally perhaps to small packages, which have been inadvertently left by the travellers themselves in the carriages.

An inquiry into the plan adopted by railway companies with regard to lost property, will show what pains are taken to restore it to the owner. When a passenger train arrives at the end of its journey the carriages are most carefully searched. If any articles are found, a record is taken, giving full description of each package, and stating on what day, in what train, and by whom found. Every station is required to send to the Clearing-house (see Chapter XIV.) a return of all articles, giving full particulars of the same: if umbrellas, the colour and material must be mentioned; if hats, the number and maker's name; if boxes, the colour and material and any peculiarity they may present. If articles thus found are addressed, there is of course little difficulty in dealing with them; if they contain no address, at the expiration of a week and after every effort has been made to find the owner, the rule in the case of bags, etc., is to examine the contents. When a month has passed, the packages are forwarded to the Lost Luggage Office. After an accumulation extending over twelve months, the contents of one of these offices may well be described as a "curiosity

shop." Umbrellas, as might be expected, generally muster in good force, accompanied by walking-sticks of all descriptions; then there are carpet-bags, leather bags, portmanteaus, books, etc., etc. As a list of miscellaneous articles, imagine the assorted contents of twenty carpet-bags! After the expiration of at least a year, a clearance is effected by means of an auction sale, where, it is hardly necessary to state, good bargains are often made. This sale is also an opportunity for disposing of articles which have been missent or damaged during transit by goods train, and for which the company has in most cases had to pay in the shape of claims made by the owners. Everything is sold without reserve, whether the price offered be large or small.

We have before us a list of one of the annual sales of the Midland Company, the announcement being made in the following terms:—"*Annual sale of damaged and unclaimed property and salvage. A valuable assortment of miscellaneous goods, including about* 150 *tons of pig iron, several tons of steel and bar iron, a large quantity of leather, paper, drapery, unclaimed passengers' luggage, parcels, etc.*" But this advertisement would scarcely prepare the reader for the contents of the catalogue. The sale extended over nine days. There were in all about 1400 lots of truly miscellaneous goods. One of the first items which attracted our attention on glancing at the catalogue was Lot 179, a balloon and car. Further down the list was Lot 523, 130 magnets; Lot 576, 1400 fish-hooks, 12 sand-glasses, and a parcel of

locks. Examining the list a little more carefully, we found amongst merchandise of almost every description 6 sewing machines, 12 coal vases, 15 perambulators, 34 dozen galvanized buckets, 15 dozen paraffin lamps, 24 roasting jacks, a large number of iron bedsteads, casks of oil, beer, vinegar, cider, paint, treacle, etc. In the passengers' lost luggage department there were 68 mugs, 11 bundles of coats and trousers, 6 dozen baskets, 14 children's hats, 124 hats and bonnets. Lot 71 included 104 articles of underclothing. Umbrellas, with their usual fatality, were represented by 456 made of alpaca, and a similar number made of silk, sold in lots of one dozen each. Of walking-sticks there were 13 dozen; 71 purses, 55 pairs of spectacles, 39 pipes, and 24 tobacco-pouches. In the parcels department there were, among a host of articles too numerous to mention, two new brass-inlaid crucifixes and an incense burner. In the drapery department an assortment, ready-made and otherwise, sufficiently numerous and varied to provide a dozen shops with a good stock in trade. Not the least remarkable feature of the sale was the number of boots and shoes to be disposed of; there were in all 413 pairs. Having arrived at the ninth day, the business came to a conclusion—a satisfactory one probably—with the sale, among other things, of a case of still hock, one case of mountain wine, several lots of whisky, brandy, gin, and 16 boxes of cigars.

Of late years especially, the cloak-rooms at the different stations have been much used. The charge

for depositing luggage at these places is twopence per article, which it is much better to pay than to trust to the safety of property by leaving it in waiting-rooms, etc. An additional penny per day is charged for each article when left for more than three days.

The plan of providing security by means of insurance has been extended in almost all directions, and it was proposed not long since to bring it to the rescue of the property of railway travellers in the shape of "The Railway Passengers' Luggage Insurance and Express Delivery Company." The intention of the company was to issue tickets of insurance for luggage at every railway station in the United Kingdom on the same principle as that adopted by the Passengers' Insurance Company for Accidents. The proposed rates were to be as follows :—

To insure	£50	3*d.*	not exceeding	6	packages.
,,	£30	2*d.*	,,	4	,,
,,	£10	1*d.*	,,	6	,,

Annual tickets were to be issued to commercial travellers, for whose baggage the companies do not hold themselves responsible in case of loss.

We are not in a position to say whether the company survived its birth. At any rate, the issue of the prospectus expressed a great public want.

CHAPTER XIII.

RAILWAY OFFICIALS.

ACCORDING to the returns of the Board of Trade, dated February 5, 1875, there were at that time 274,535 persons employed on the railways in England, Scotland, Ireland, and Wales. The following are some of the items which go to make up this number :—

SECRETARY'S DEPARTMENT.	
Secretaries	121
Clerks	669
GENERAL MANAGER'S DEPARTMENT.	
General managers	71
Clerks	347
SUPERINTENDENT'S DEPARTMENT.	
Superintendents	47
Station-masters	5132
Clerks	7704
Inspectors	850
Guards	4684
Signalmen	12,984
Ticket collectors	1377
Shunters	1308
Porters, etc.	19,848

GOODS MANAGER'S DEPARTMENT.	
Goods managers	29
Agents (or goods station-masters)	662
Clerks	11,557
Inspectors	732
Guards	5445
Shunters	3906
Porters, etc.	29,844
LOCOMOTIVE DEPARTMENT.	
Engineers	64
Clerks	1211
Drivers	9554
Firemen	9749
Mechanics	36,693
ENGINEER'S DEPARTMENT.	
Engineers	81
Platelayers	26,177
Labourers	22,121
ACCOUNTANT'S DEPARTMENT.	
Accountants	78
Clerks	1911

The railway service has developed into one of the most important departments of our national industry, and it is constantly increasing in this direction. The public are continually brought into contact with railway officials of different grades, and the services rendered are so numerous and so cheerfully performed, that it is no matter for surprise that the railway service has attracted so much popularity. It will not be out of place to notice here what may be considered certain prominent characteristics of some of those who conduct and carry out the working of our railways.

It will be no flattery to remark that amongst the managers of our railways are men almost beyond comparison with regard to their business capacity. From these, again, might be selected some names which stand out much more prominently than others; but it is not the intention to draw what might be deemed invidious distinctions. Suffice it to say that those who have the management of our great railway system are charged with important and immense responsibilities that it would perhaps be impossible for outsiders to measure. Imagine what an amount of tact, energy, ability of judging character, and qualification as an administrator, must be concentrated in one man who has the control of thousands of men distributed over hundreds of miles, and who has to adopt such a policy between the public and the company as shall give satisfaction to the directors and content their customers. The almost ceaseless activity of such men, combined with the exquisite anxiety almost necessarily involved, must constitute a serious strain upon the physical and nervous energies.

The general manager, as the term implies, is charged with a comprehensive control of the entire system with which he may be connected. He is in constant communication with the directors, and in company with them makes, by special train, periodical inspection of the company's stations and lines. It is the general manager who, subject of course to the veto of the directors, decides upon and controls the general policy according to which the system shall be

worked. Amongst other no less important functions, the general manager has to consider the necessity for the introduction of new and improved modes of working, to promote the development of the system by judicious extensions and otherwise, and finally to manage law proceedings, and to watch the interests of the shareholders as they may be affected by the action of the legislature.

Amongst the principal officers, there are two especially who are brought into contact with the public—the goods manager and the superintendent of the passenger department. The goods manager is perhaps the more important of the two. In him is invested the control of the goods, mineral, and live stock departments. Acting according to general principles laid down by the general manager and directors, his position is chiefly that of administrator. The post is no merely ornamental one. The necessary qualifications can only be acquired by long and thorough experience. A complete mastery of all the details of the entire rate system is absolutely essential, for it is in connection therewith that he has to exercise one of the most important functions in railway working. Such rates have to be adopted as will at once be remunerative to the shareholders and satisfactory to the public. Rates are continually undergoing alteration so as to be adapted to circumstances which are constantly changing. It is therefore essential that the goods manager, who can thus either increase or reduce rates almost at pleasure, should be thoroughly acquainted with all

the different commercial interests with which his railway is connected, and be able to exercise a wise and judicious discrimination in the alterations which may from time to time be deemed necessary. Experience in such matters may go a long way, but this is not all that is necessary. There must be considerable native talent; there must be natural ability for influencing and guiding other men, which no amount of service would bestow. The goods manager has often to deal personally with the public; indeed, of late years, a practice has grown up of deputations waiting upon these officials with a view to enforce grievances, and those who have formed part of these deputations will doubtless have noticed with what consummate skill the railway representative is able to reply in the negative and steer clear of difficulties.

Another very important division of the goods manager's department is that for dealing with claims made by the public for compensation in respect of loss or damage to goods, and here is a necessity for sound discretion and impartial decisions. It will thus be seen that the goods manager, in dealing with the public, must have a thorough knowledge of human nature, and must be endowed with clear views and quick perception as leading characteristics. But the goods manager has not only to deal with the public—he is brought constantly in contact with the managers of other railways. Conferences are held periodically at the Clearing-house, with regard to mutual interests, where the managers have to represent their respective companies, and where their capacities and general

demeanour are thoroughly tested. In this railway parliament, questions of great importance have frequently to be discussed. Hence the man who possesses a good gentlemanly address, and who can clearly and fully enunciate the policy of the company he represents, not only becomes a power in the railway world, but exercises a considerable influence over the commercial interests of the nation. The qualification here indicated is a very necessary one, and it is exemplified in no ordinary degree amongst goods managers. The success of this, as indeed of every other department, must of course depend very much upon the constitution of the general staff. The manager must therefore be proficient in the art of organization, and be a good judge of character, in order that he may have the right men in the right place, and that the number of officers be exactly in proportion to the amount of work to be done. He cannot waste his time by going into details connected with each department, and he must therefore have men of good capacity and worthy of confidence.

The passenger superintendent governs his department very much in the same manner that the goods manager does the merchandise department. The appointment and control of all the necessary staff for the working of the trains, viz., station-masters, porters, guards, signalmen, etc., are some of the principal functions to be exercised. Great responsibility is thus involved, for upon the efficiency of the officials, the safety of passengers, no less than the proper and expeditious working of the trains,

depend. The passenger superintendent has to arrange the times of the trains so as to meet as far as possible the requirements of the districts through which the line runs; at the same time he must have in view the best means of competing with other companies, whilst paying due regard to economy in working expenses. The preparation of the company's time tables is necessarily the work of this department. Not the least important function of the generalissimo of this division of the railway system is the supervision and control of the signal arrangements, the dealing with which has almost come to be a science. First of all, the particular mode of signalling has to be agreed upon; then it is necessary for the machinery to be applied in the most suitable positions and most convenient intervals. All this having been done, the proper men have to be selected to work the system. Another province is that of a proper distribution of the rolling stock, so that the trains at the several starting-points may be made up of a suitable number of vehicles. Then there has to be exercised a general control of the stations, and the accommodation there provided for passengers, combined with the general management of all that pertains to the forwarding and receiving, as well as the charges for conveyance, not only of passengers, but of parcels, horses, carriages, dogs, etc.

In conducting so enormous a business, spread over such a large area, it will at once be understood that complaints on the part of the public, and irregularities on the part of the officials, frequently arise, which

call for some personal attention, but which it would be impossible for the manager or superintendent himself to investigate. In connection, therefore, with both the goods and passenger departments inspectors are appointed, to whom certain districts are given, over which they travel for the purpose of reporting upon any differences which may arise, and in matters of detail they represent the manager or superintendent. In this division of the service there has, during late years, been a considerable increase in the number of officials, perhaps an unnecessary increase. So much supervision by such a variety of overlookers naturally becomes irksome. As a rule, men are most likely to perform their duties circumspectly when confidence is bestowed, and they are left to work with a certain sense of personal responsibility.

Having paid some attention to the commanding officers and their lieutenants, let us now come to speak of that popular official, the station-master, and of the general rank and file of the service.

The railway station-master is an institution in almost every town. Speaking generally, he is a man who is thoroughly master of his position. His knowledge of railway matters must be varied and complete, for his responsibility extends to all the details of outdoor working arrangements, and to a thorough acquaintance with and supervision of all the minutiæ of account-keeping indoors. In order to be thoroughly qualified to hold such a position, a man must have served a fair term of apprenticeship, and have had actual experience of a very varied sort. Especially

is this the case where the station-master has control of both the goods and passenger departments. It is only at very important stations that the duties are divided. He has thus frequently a very difficult course to steer. He is subject to the instructions of the chiefs of all the various departments with which he comes into contact. Sometimes, indeed, it may happen that he receives different orders about the same subject from officers of various grades in the same department. In other words, he has to serve a good many masters and please all. Then, again, there is the public to serve and please, while at the same time the interests of the company must never be lost sight of—not an easy task to perform at all times. Amidst all the anxiety thus entailed he is ever ready to administer to the wants of the public. It is really surprising how much his advice and assistance is in demand, sometimes unnecessarily, about trivial matters.

The station-master has frequently a large number of men under his control, for whose actions the railway company hold him in some measure responsible; much judgment and care is requisite, therefore, in connection with staff arrangements. The work of railway men seems to be woven into their very existence, and especially is this the case with the station-master. It would be difficult to state at what time of the day his duties commence, and at what time they are completed. The interval from Saturday night till Monday morning does not mean so much rest for the station-master as it does

for other men. At any hour of the night, too, he is liable to be roused from his well-earned slumbers to take action in connection with some break-down goods train which has fouled the line, or some accident of a more serious sort. So engrossed are they with the cares of their position that such men have to forego many rights of citizenship which others enjoy. Many of them ought to be paid better than they are.

At many roadside stations, where only a very few trains stop in a day, and where there are only one or two officials in charge of the whole establishment, business is tolerably quiet—perhaps too quiet. In many such cases the individual in charge, with the assistance of some country youth who has just donned the railway corduroy, has to be station-master, clerk, ticket collector, signalman, and porter combined. With a suit of clothes once a year, a good house and garden adjoining the station, and regular moderate wages, many such individuals seem well content with their monotonous existence.

Now with regard to the rank and file of the service. Of late years the necessity has been more and more felt of employing men not only of intelligence and good personal character, but with sound physical constitution. The greatest possible care is exercised therefore in making additions to the staff. A minimum height and age is fixed upon for the respective branches of the service, and all candidates for employment are tested and examined, especially with regard to sight. It is requisite that a man should be able readily to

distinguish between different colours; any fault in this respect might, as will readily be understood, be followed by serious results in connection with the signalling department. Then the quality of the sight is further tested by means of spots on a card, placed at a given distance from the individual, the outlines of which it is necessary he should be able to distinguish. The result is that the railway service has attracted a smart set of men. Whilst this is true, there are the awkward-squad; but, taken all round, the officials on our railways are good representatives of Englishmen.

Porters are the most numerous class, there being about 20,000 in connection with the passenger department, and 30,000 employed in the goods department. Each of these men is provided with rather a long list of rules, which he is expected strictly to carry out. The goods-station porter is, of course, constantly engaged in the loading and unloading of merchandise, and other duties in connection therewith, and does not appear much before the public. The passenger-station porters exist on purpose to wait upon the public, one of their principal duties being, according to the rules of the company, to pay every attention to the passengers, whatever their class. The rules enjoin also that the porter should appear at all times scrupulously clean, both as regards his person and uniform. In this respect it is only fair to express a good deal of satisfaction. It is the duty of the porter to see that everything in connection with the station is clean and in order. Not a few places are celebrated for the

absence of cleanliness, both in the waiting-rooms and other offices. A little more vigilant supervision, and perhaps a more adequate staff of men, might remedy this.

The luggage department is one with which the porter has principally to do. In certain seasons of the year, his duties in connection therewith are by no means light, and the difficulty he experiences in giving satisfaction to all parties concerned somewhat perplexing. It is not, then, surprising that he uses some discrimination in dealing with his customers. The companies give notice that their servants are not to receive gratuities, under pain of instant dismissal. Many railway travellers know that this bye-law frequently suffers infringement. It is not our intention to characterize such infringement as a heinous offence. At the same time, it may be said that it is the porter's duty to pay attention to all alike. Passengers sometimes suffer inconvenience because of the distinctions made.

Guards usually are selected from the smartest, most experienced, and reliable porters. Having been first sent out occasionally to test their capabilities, they progress gradually, until they develop into head guards, such as are well-known characters on some of our important express train routes—men, for example, who take charge of the London and North Western Irish mail, the Great Northern Scotch express, the Great Western "Flying Dutchman," or the Pullman car service of the Midland. Although the opportunities for conversation, and thus becoming

acquainted, are less than in the case of the coachman of the good old days a hundred years ago, the railway guard of to-day soon becomes known to accustomed travellers, and may be taken as the modern substitute, if not the representative, of the now historical coachman. It is the duty of the guard to be at the starting station half an hour before his train is due to leave, so that he may be able to see that everything is in good working order, *i.e.*, the lamps, brakes, carriage couplings, etc. During the journey the guard superintends the stopping and starting and general working of the train; he takes charge of parcels, luggage, etc., and is expected to pay every attention to passengers. For ladies he must, if they desire it, and it be practicable, find separate compartments. As the train proceeds, the guard has to prepare a journal, showing the exact time of stoppage and departure from each station, and to record every circumstance of an unusual kind. This report has to be delivered to some official at the end of the journey, and the slightest irregularity noted therein is the subject of very careful inquiry.

Guards who have to travel in charge of goods trains are not subject so much to the public view, but they have important and arduous duties to perform. In preparing for the journey they have to marshal the train, of from thirty to forty waggon loads of merchandise, into the most convenient order for detaching at the various stations as it proceeds along the road. The work of these men, as well as that of shunters, whose special duty it is to arrange and re-arrange

waggons at the different junctions and stations, is perhaps more dangerous than any other in connection with railways. As before intimated, little is seen by the public of this section of the staff, and hence next to nothing is known of the nature of their avocation. A very large portion of their time is employed in passing in and out between the wheels, to couple and uncouple waggons, and this whilst the train is moving at a considerable speed. The work has frequently to be done in the midst of other lines, where similar operations are going on; to be careless for a moment is to run the risk of being knocked down by some other train. The activity of these men in jumping on and off the waggons during the process of shunting is very remarkable. It is frequently the case that, as the train is moving, the man will leap on to the waggon buffers, upon which he will balance himself, resting on the centre of the body, during the act of reaching over to release or attach the coupling, then swing round and alight on the ground. In witnessing these operations we have often wondered that accidents are not even more frequent than they are. The men are ordered by the companies to use every precaution, and are forbidden to do this, that, and the other; but the difficulty of the men is that they have a large amount of work to do in a limited time, and all delays have to be fully explained; it is on this account difficult to see how the extraordinary means described for getting through the work of shunting can be avoided. The startling statement has been made that one out of every fifteen goods guards and shunters

employed in the railways of England is either killed or injured every year.

In many respects the engine-driver is the most important official employed in connection with the working of the trains; but passengers seldom see him or think of him, perhaps, so long as their journeys are performed in safety. Only a moment's thought is necessary, however, to convey some idea of the immense responsibility with which the men who control the running of the railway steam-horse are invested. The qualifications of such men must be unexceptionable, and great care is exercised by the companies in making selections. The engine foot-plate is no place for a timid, nervous man, and he should have great presence of mind. He must not be liable to be easily taken off his guard, and at the same time be as vigilant as the "look-out" on board an ocean steamer. Imagine the responsibility involved. The engine-driver has under his entire control a machine rushing along at a rate of sixty miles an hour, with the lives of hundreds of persons in his hands, and the probability that in the case of mishap his own life is most in danger. Under the most favourable circumstances, and in the best weather, the engine-driver's travelling is of rather a rough sort. What, then, must it be during the darkness of a mid-winter's night, when perhaps there is a dense fog, or the snow is falling fast, making it almost impossible to distinguish the signals? But still the driver goes on calmly and carefully, and at the end of the journey is in a perfectly composed state of mind. The first

duty of the engine-driver is to obey the signals, and to give proper notice to the signalman, by means of the engine whistle, as to the nature of the train or by which particular line it is intended to proceed, and with regard to which most elaborate regulations have to be observed. He is expected to stand up and keep a good look-out during all the time the train is in motion.

The question of accidents to railway servants during the performance of their duties is a serious one, and has deservedly attracted a considerable amount of public attention. The companies generally disclaim responsibility, and whilst they are compelled to pay compensation in the case of accidents to passengers, there is no provision at law for the recovery of compensation by the railway official. It is urged on the part of the service that to the absence of proper appliances must be attributed some of the accidents which occur, a statement in which there is a considerable proportion of truth. At a meeting held in Exeter Hall, London, in January, 1878, for the purpose of urging Parliament to pass a measure enabling railway servants to claim compensation of the companies for injury, Mr. T. Brassey, M.P., who was chairman on the occasion, stated that during the four years from 1873 to 1876 inclusive, there had been a yearly average of 740 deaths and 2250 serious casualties among railway servants, and that in working the railways of the United Kingdom during the five years from 1872 to 1876, nearly 3000 servants of the various companies had lost their lives. In

face of such facts as these it would seem that legislative action is imperatively necessary. The interests of the public, too, are concerned in this matter, for a law recognizing the right of the companies' servants to compensation would doubtless induce the increased adoption of safety appliances. In taking leave of this subject, it may not be amiss to refer to the good work done for the relief of railway servants by the Railway Benevolent Institution, London, and the Railway Servants' Orphanage, Derby, both worthy objects of charity.

We come now to speak of another very important department of the railway service. We refer to clerks, of which there are about 25,000 on the railways of the United Kingdom. It is probable that there is no better clerk-school than railways for becoming accustomed to hard work, for attainment of rapidity in writing, and for a certain adeptness in simple calculations; but there is too much of the boy element for there to be thoroughly business-like, systematic, and orderly habits in general practice. A return showing how many youths under twenty years of age are employed by railway companies, would reveal some remarkable facts, or a visit to a railway station in almost any large town would suffice to illustrate the state of the case. Out of a dozen clerks, eight or nine would in all probability be found to be boys very much in each other's way; many of them not long from school, employed to assist in the carrying out of an elaborate system of accounts, than which none other can be found more elaborate and intricate.

A vast amount of work is, under such circumstances, hurried over with little heed to accuracy or efficiency. Railway companies, no doubt, experience much difficulty in moulding their staff arrangements, but in the working of their vast machinery of account-keeping, it might fairly be expected that the employment of a much larger proportion of well-trained and experienced clerks would insure greater efficiency as well as economy, and give more satisfaction to the public. The ill effects of the present system find their way to the public, so that it cannot be argued that the question is not a fair one for criticism. The instructions to the departmental chiefs are to keep down expenses; the danger is lest action in this direction may be taken so far as not to be coincident with keeping up efficiency. With an inexperienced staff, more supervision is of course necessary, or there is the alternative—a general lack of organization and work slovenly done or neglected altogether. In point of salaries, many of the principal railway companies pay their junior clerks according to a uniform scale, and in some instances upon a liberal basis; but the majority of adult railway clerks are the worst paid and the hardest worked of any of their class. Large numbers are there who, after many years' service, are paid less than £100 a year, some holding important positions as cashiers, etc.—amongst them many fast approaching the prime of life.

There has been some movement in the direction of the employment of women for some departments of book-keeping in connection with railway goods traffic.

Three years ago the experiment was tried by the London and North Western Railway at Birmingham, the work selected being the abstracting from invoices for the accounts of credit customers, and for forwarding to the Railway Clearing-house. At the present time (January, 1878), at the station referred to, fifteen women are employed. Their hours are from 9 a.m. to 5 p.m., with an interval for lunch, and they receive from ten to seventeen shillings a week for their services. It has been found that the work is done much more accurately than by male clerks, to say nothing of the greater neatness also displayed. This has been called by one of the sterner sex "an invasion of women," but is it not rather a step in the right direction? The field for the employment of women is circumscribed, and its extension in such a direction should be hailed with satisfaction. Then there will be the beneficial effect of displacing some of the overplus boy clerks who have heads or hands more suited for other avocations. And such an employment must constitute a good school where women may become acquainted with the accomplishment of simple account-keeping—a benefit to them individually, and to all whom it may in future time possibly concern.

CHAPTER XIV.

SYSTEM OF ACCOUNTS—RAILWAY CLEARING-HOUSE.

In connection with our railways it will readily be understood that it is absolutely necessary that elaborate accounts should be kept, in order that the general position of affairs may be ascertained from time to time, as well as to insure accuracy. Indeed, without some thoroughly systematic and complete mode of registering and classifying the whole of the work performed, it would be almost impossible to attain to any measure of success. On the respective railways a certain system of accounts is adopted at all the stations, and these accounts have to be prepared and submitted with unvarying uniformity. Statements are prepared monthly, showing in detail the transactions there have been between a certain station and all other stations. Then these accounts are summarized according to a strictly defined plan. As precisely the same rule is adopted at every station on a certain line, the comparison of the returns received from the various places is greatly facilitated. These must not only be full and correct in detail, but

must show at a glance the exact weight of traffic received and forwarded during each month, and the amount received for carriage. The preparation of "returns" is the great forte of railway companies; figures have to be shown, first in one form and then in another, comparing the amount of traffic of one period with that of some other period, and an explanation is expected to be given, moreover, of every variation as regards amount of traffic, more particularly in cases of decrease. In connection with railway accounts it is made imperative that they should be balanced exactly. If the difference is only a penny the figures must be examined and re-examined until correctness is attained. We have heard of attempts to "cook" accounts, but this has its own reward, for, from the nature of the system adopted, discrepancies are almost sure to reveal themselves.

Most of the principal stations in the kingdom are enabled, by means of rates agreed upon by all the companies interested, to invoice goods to almost any place on any other railway, however distant, and no matter how many other companies' lines the traffic may have to pass over. To a non-practical observer such an arrangement as this would seem to create the utmost confusion. Such is by no means the case; goods often go through the hands of three or four railway companies, and steamship companies besides, and still the most complete uniformity is observed, both as to route and division of receipts. Specified routes are agreed upon; it is also decided between the companies what proportion of the rate

charged shall be allotted to each, and this division is carried out with the greatest possible accuracy. The mode of procedure we have described is strictly adhered to at the smallest as well as the largest station, with regard to every passenger, parcel, horse, carriage, dog, and every lot of goods, whether it be a small cask of sugar, an empty box, or a waggon-load of coal or corn. Some estimate may thus be formed of the nature and extent of the work in connection with the keeping of railway accounts.

We have endeavoured to give some idea as to the way in which railway companies keep their own accounts. It was not many years after the introduction of the railway system that great difficulty was experienced by the companies in the settlement of their transactions amongst each other. But, more than this, the absence of some concerted action on the part of the companies was a great obstacle to safe and expeditious transit. Goods forwarded from one company's line to another had to undergo frequent transhipments, entailing loss of time, risk of damage, and, not the least important point, considerable confusion with regard to the cost of carriage. It is satisfactory that men were soon found equal to the occasion. Mr. Morison, the first manager of the Railway Clearing-house, writing in 1838, said, "It became evident, when the railways which extend from London to Liverpool had been completed and connected, that arrangements must be made to facilitate the passage of through traffic at the points where the three railways joined. It was found that not only must pas-

sengers be permitted to perform any journey within the limits to which continuous communication by railway extended without being required to change their carriage, but that a similar principle must pervade the arrangements for working every description of through traffic if the public were to be conciliated, and the resources of the railway system developed to their full extent."

An endeavour was made by the companies to meet the difficulty by the interchange of traffic and the settlement amongst each other of the accounts arising therefrom. An undertaking was given by the respective companies that accurate returns should be rendered of the traffic which passed from one line to another; but the difficulties and disputes which arose were so numerous and serious, and some companies were so liable to take advantage of others in dealing with the division of receipts, that the idea of some independent authority being constituted for the purpose of dealing with through traffic forced itself into notice.

The matter gave rise to much discussion amongst railway managers, whilst at the same time they did not seem disposed to introduce any measure of thorough reform. But the necessity for change was so great that prejudices had to be dispensed with, and about the year 1840 Mr. Morison (already referred to, and who was chief auditor of the London and Birmingham line), together with Mr. Robert Stephenson, suggested that the difficulties complained of would be obviated by the establishment of a central

authority, with an organization something similar to that of the Bankers' Clearing-house. The proposition met with the ready compliance of Mr. George Carr Glyn (afterwards Lord Wolverton), who was chairman of the London and Birmingham Company. After much opposition on the part of some of the railway officers, the year 1842 witnessed the inauguration of the Railway Clearing-house in connection with the principal railways then in operation. A short experience proved that the right plan had been adopted. The operations of the establishment were soon extended. The following extract from an article published by the *Times* in 1869 will give an idea of the progress made up to that time:—

"Neither the War Office, Colonial Office, nor the Admiralty gets through more work in the year than is accomplished by this plain, unpretending-looking Clearing-house in Seymour Street, Euston Road. Unlike those great public offices, too, the Clearing-house enjoys the rare felicity of balancing its accounts, though they amount yearly to some twelve millions sterling, to almost the fraction of a farthing. There is never a surplus, and there is never a deficiency. All the incomings and outgoings are balanced every month, and every pound, shilling, and penny of the vast sums can be accounted for. All this is done, too, with very little cost, by one able chief manager, Mr. P. W. Dawson, by four chief clerks, and about 900 subordinate clerks; and this staff, at the very minimum of cost, discharges duties without the proper performance of which our whole railway

system would become at least, if not an evil, a most unmitigated nuisance and bungle. It is almost impossible to guess at the staff, and the cost of the staff, which a Government department would require to do the same work."

As the railway system expands, the Clearing-house necessarily extends its dimensions. Since the above remarks appeared in the leading journal the establishment has more than doubled itself, there being at the present time a total staff of about 2000. The system of accounts is at once, perhaps, the most elaborate and efficient of any in existence. Before proceeding, however, to give an idea of the general *modus operandi* in connection therewith, it may be interesting to note that what may be called the directorate of the establishment consists of the principal officers belonging to the various railways. All the principal companies participate in the Clearing-house arrangement, and are represented in the management by an appointed delegate, each company contributing *pro rata* to its support. In addition, the goods managers and passenger department superintendents meet from time to time to discuss any and every matter relating to the interchange of traffic. They have, for example, to decide upon what basis charges shall be divided amongst the companies interested, and to fix certain rules as to dealing with claims made by the public in respect of compensation for damage or loss. One very important function of the goods managers is to revise from time to time the "general classification of goods by merchandise

trains on railways;" the nature of which will be found described in a subsequent chapter.

Now as to the more immediate object of the Clearing-house. To be thoroughly systematic is, of course, most essential; hence the work is carried on by departments for each description of traffic. There is the goods department, coaching department, mileage department, etc., each being subdivided, and the subdivisions told off into sections. Each individual of the 2000 *employés* has thus a definite work to perform; the whole concern is worked almost with the uniformity of a machine, and confusion is well-nigh unknown.

The work in connection with all kinds of merchandise conveyed by goods trains is of the first importance. In regard to this traffic, the duty of the Clearing-house is to receive from the companies monthly a detailed account of all goods which have passed over more than one line of railway, to examine and test the correctness of such accounts, and then to divide the receipts accordingly. It is, of course, understood that with each consignment of goods is forwarded an invoice, on which is stated the weight, the rate per ton, and the amount of carriage "paid" or "to pay," as the case may be. For the sake of illustration, take the instance of a ton of goods sent from London to Edinburgh, the carriage of which (say fifty shillings) is paid by the sender. As the goods have to be carried over the lines of two companies—say the London and North Western and the Caledonian—it will at once occur to the reader to ask, How does

the Caledonian Company get its share of the fifty shillings? The plan adopted is as follows:—At every station in the kingdom monthly returns have to be forwarded to the Clearing-house, giving particulars of all consignments received from or forwarded to stations on any of the other railways; the total weight of goods entered on each invoice has to be given, with the amount or amounts "paid" or "to pay." In making these returns the strictest order has to be observed. Goods received are abstracted on sheets separate from entries for goods forwarded, and in making out the summaries the names of the stations are grouped according to a strictly defined rule. Taking again the case of Edinburgh and London for the sake of illustration, it may be remarked that at one place a return has to be submitted of goods forwarded, at the other a return of goods received. These should agree in every particular; if any inaccuracy is detected, a correspondence with the stations concerned is entered into, which is continued until the discrepancy is satisfactorily explained.

The accounts received from the stations having thus been verified, there comes next the work of dividing the receipts between the several companies concerned. A "creditor and debtor" account against each railway is made out from the station returns above described, and, after making the necessary "terminal" allowances, the receipts are divided according to the mileage traversed by the goods. In a subsequent chapter will be found a detailed description of what are called "terminal charges."

Such charges represent the services performed by the companies at their stations, as distinguished from the work of carrying along the line, and are fixed at figures varied according to circumstances. In calculating the mileage it is, of course, necessary to know by what route the goods have been conveyed, and this is not always an easy matter, owing to the simple fact that from point A to point B there may be four or five different companies' lines connected, and the returns submitted do not always give the desired information. At the different junctions connecting one line with another, great care is taken in recording the numbers of the waggons which pass to and from the different railways. By a reference to statements showing these numbers a decision as to the route employed may generally be arrived at. In cases where small lots of goods are transhipped at various points on the journey, the Clearing-house is guided by the marks of transhipment stamped on the original invoice. In making the proper mileage allowance to each company, it is also necessary to take into account the numerous special agreements which have been entered into between the parties concerned in regard to extraordinary services rendered, etc.

After the receipts, by the process described, have been duly apportioned, statements have to be prepared showing in detail all the transactions which have taken place between all the stations on one railway and all the stations on every other. In other words, a history has to be given in figures

which, in every particular as well as in one general view, shall describe the transactions for each month between every station on one railway and that on any other railway. Carrying the same idea still further, a return is prepared showing at a glance the total quantity of goods forwarded from all the stations of one railway system to all the stations of every other system, and *vice versâ*. The accounts thus prepared are so simple, and yet so thorough and complete, that the work of effecting a settlement is comparatively easy.

In connection with the vast amount of goods traffic carried on our railways, there are many other matters besides the mere division of receipts to be dealt with; such, for instance, as claims for compensation in respect of loss, damage, or detention of goods. Railway companies, too, have bad debts. In the absence of some neutral authority to decide with regard to such matters, it will readily be understood that much difficulty might arise. The Railway Clearing-house, in these and other respects, undertakes the important responsibility of adjustment.

As already stated, this department is of the first importance. The staff employed numbers more than 700 clerks, and the work increases almost every day. The whole system tells of a remarkable exhibition of organizing power, no less than of great enterprise. Without some such mode of dealing with the transit of merchandise, the hindrances to promptitude in trade transactions would be incalculable.

In connection with the passenger department, in-

cluding passengers themselves, parcels of all descriptions, horses, carriages, and dogs, etc., the Clearing-house has very much the same sort of work to undertake as that described in connection with general merchandise; but in consequence of the difference in the nature of the traffic, the course of action is not precisely similar.

The work done by the Clearing-house in connection with passengers is much simplified from the fact that all the receipts are collected at the starting station, and there is a certain uniformity through the rates being at so much for each individual, instead of so much per hundredweight. The monthly account to be provided by each station has to state what stations have been booked to, the number of tickets issued of each class, the number of half tickets, *i.e.* children's tickets; the return has also to indicate the numbers printed on the tickets, and the rate per passenger at which an apportionment is to be made to each company whose lines are travelled over. The tickets collected at the places of destination have to be sorted into consecutive order and sent to the Clearing-house, where some twenty or thirty boys are employed to re-sort them, in readiness for comparison with the sending station returns. By this means discrepancies may be discovered; for it is just possible that, in the returns, tickets may be accounted for to the wrong station, or tickets may have been used by some other route than that stated. This latter point can readily be decided by the figures stamped on the tickets by ticket collectors at the various junctions—a plan of denoting

the route by which passengers have travelled referred to in a previous chapter (p. 97).

In somewhat the same way, monthly returns are submitted of all parcels traffic. The receipts are divided between the companies according to mileage, after terminal allowances, generally at a fixed rate per parcel, have been made. The charges for horses, carriages, and dogs have also to be dealt with. Similar accounts have to be rendered, but in this case there are, from the nature of the traffic, no terminal allowances.

In connection with the passenger department generally, a division of the receipts between the companies is only made by the Clearing-house every six months. With regard to this part of railway traffic, it was found after experience that there was not the same necessity as with goods traffic for a monthly settlement. The change to a half-yearly settlement necessarily brought with it the satisfactory result of reduction in working expenditure.

Another important function exercised by the Railway Clearing-house is a supervision of the rolling stock passing from one railway to another. This is called the mileage department. Number-takers are stationed at the different junctions, whose duty it is to make a record of all vehicles which pass to and from the several companies' lines. A return in accordance with the information thus obtained is forwarded to the Clearing-house every day. According to the size and nature of the waggons and carriages thus interchanged, certain fixed rates per mile are charged to the com-

panies who have, for the time being, borrowed, so to speak, the rolling stock of other companies. Then a charge is made for demurrage if vehicles are detained beyond a specified time. In the case of carriages for passengers, if they are detained beyond one clear day, a charge per diem of ten shillings is made for a first-class carriage, six shillings for a second-class carriage, six shillings for a horse-box, and so on. With reference to waggons for merchandise, if they are delayed beyond two clear days, then a charge of three shillings per day is made for demurrage. Sheets (tarpaulins) are charged at sixpence per day. The system adopted renders it almost impossible for improper use to be made of the stock of one company by another. So complete is the history recorded of every movement of rolling stock between one railway system and another, that the Railway Clearing-house knows as well as, if not better than, the companies do themselves what is going on. In this department there are some 300 clerks and 500 number-takers, the latter being, of course, distributed over the different railways.

The lost luggage department is a very important one. In Chapter xii., dealing with the question of luggage generally, we have stated that it is the duty of every station to send a return to the Railway Clearing-house of all articles found without owners. The applications made by passengers as to missing luggage are also sent; these are compared with the station returns, and if the lost articles are not found in one list they may be discovered in another. Steps

are taken to secure a proper identification of lost packages, and when this has been done the property is at once restored. In the carrying out of this work it will be plain that considerable care is necessary, in order to avoid any successful operations on the part of evil-disposed persons. The fact that this duty of taking proper care of passengers' luggage which has gone astray requires so much caution and a very systematic course of action, will perhaps suggest to some who may have the misfortune to lose their luggage the desirability of exercising somewhat more patience during the time necessary to be expended in its recovery. In order to show that this department has plenty of work to do, it need only be stated that during twelve months the Clearing-house has to do with more than 20,000 alleged losses.

The brief description here given of what is practically a great national establishment will be sufficient to show how vast and important are the functions with which it is intrusted. No less will it be seen, even from the rough outline here given, how completely and thoroughly the entire work is carried out. The whole system of account-keeping is as remarkable for its great simplicity as for its perfect efficiency. Lastly, the Railway Clearing-house is perhaps beyond comparison as regards the amount of work performed by a given number of individuals during a given time.

This establishment exists primarily for the mutual benefit of the railway companies. The same spirit of co-operation has manifested itself amongst the

employés in almost every conceivable direction. For example, there is a superannuation fund, a medical fund, a provident association, a deposit bank, a literary society, a dining club, a co-operative. supply association, dramatic and musical societies, etc., etc.

CHAPTER XV.

FARES AND CHARGES BY PASSENGER TRAIN.

THE question of the charges made for the conveyance of passengers and merchandise relates by no means to the interests of any particular class. It is one of great national importance, and at no period in the history of our railways has the matter engaged so much public attention as it does at the present time. The cost of carriage, in a very great measure, affects the price of every species of manufacture. Calculate the number of journeys taken by any commodity of daily use from the time when it was in its original state up to the period of its manufactured completeness in the hands of the user or consumer, and some estimate may be formed of the extent to which the question of facilities for general intercommunication is associated with the well-being of the trade and commerce of the country. According to the fares which the trader has to pay, so he is influenced, to a considerable extent, as to what markets he shall attend. The tourist in arranging his summer holiday has also to count the cost of railway fares, and, in

a multitude of other ways, the facilities afforded for cheap and expeditious transit of passengers and merchandise have to be taken into consideration. No other branch of commercial enterprise contributes in so large a degree to the carrying on of the vast trade of this country as railways; but a general feeling prevails that the existing system of charges is, in many respects, unsatisfactory, and that the public do not derive from our great iron highways the amount of benefit which, with their vast resources, they are capable of affording. Indeed, it may safely be asserted that in no other department of the commercial world do there exist so many anomalies and inconsistencies. Experience has shown, moreover, that it is no easy matter to move the powers that be, In the Report of the Joint Select Committee of the House of Lords and the House of Commons on railway companies' amalgamation, made in 1872, it is strongly urged that the public should be able to ascertain beforehand exactly what they have to pay, and why they should pay it.

In accordance with the important principle thus laid down, it is the intention in this and the following chapter to describe in some detail the general system of railway charges, with the primary object of conveying useful information upon the subject, and to assist the public, though it may be in a very small measure, in forming an accurate opinion of the merits of the system. An attempt will also be made to point out, as concisely and impartially as possible, some of the anomalies and inconsistencies which exist, and to make some suggestions relative to their removal.

It may be considered by many who are more immediately connected with railway management that a task no less arduous than bold has thus been undertaken. The author will deal, as far as may be, with facts and figures carefully collected, and these, together with the views hereafter enunciated, he will be quite content to leave to be judged according to their merits.

It is satisfactory to observe that in some quarters there is growing up a tendency on the part of the railway executive to adopt a more liberal policy. Perhaps nothing is more calculated to develop this tendency than the expression of enlightened public opinion, and it is eminently desirable that the subject in all its issues should be well ventilated. The public in general, and traders in particular, would do well to examine the question carefully for themselves. There has hitherto been too much of a tendency just to accept things as they are.

Experience has again and again proved that high charges do not always pay the best; and yet, to increase their receipts and dividends, railway companies advance their charges, and not unfrequently are disappointed with the result. An experiment of this kind was tried in connection with the Metropolitan District Railway in May, 1873, the result of which was announced at a meeting of the directors in August of the following year by the chairman (Mr. Forbes) in these terms—"He believed he was expressing the opinion of his colleagues at the Board when he said the experiment had failed, and that he

thought they would have carefully to retrace their steps."

It may be interesting to state what are the powers conferred upon the railway companies with regard to fares for passengers. The provisions of the special Acts of Parliament are almost invariably as follows:—

"For every passenger conveyed in a first-class carriage, threepence a mile.

"For every passenger conveyed in a second-class carriage, twopence a mile.

"For every passenger conveyed in a third-class carriage, one penny halfpenny a mile.

At the present day the companies do not charge to the full extent of their powers, and this because it pays them much better not to do so. The following may be taken as about the average fares charged in 1877 by some of the English companies for a distance of 100 miles:—

	Single Tickets.								Return Tickets.					
	1		2		3		Parly.		1		2		3	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
London and North Western	15	9	12	0	8	8	8	4	30	0	22	0	17	4
Midland	15	0			8	4			30	0			16	8
Great Northern	16	0	12	0	8	4			30	0	23	0	16	8
Great Eastern	18	8	14	2	11	0	8	4	28	0	23	6	17	8

As is well known, the fares between competing points are the same by the various companies' routes. If the route by one line is fifty miles, and by another one hundred miles, the same rates are charged. It would be difficult to give a statement showing the exact comparison between the fares charged on the

different lines, as the figures are, according to very numerous circumstances, subject to almost infinite variation. The London and North Western still retains four classes, by the issue of third-class tickets as distinct from parliamentary or a penny per mile tickets; whilst, as is well known, the Midland is content with two classes—first and third. Some companies, notably the Great Western, have six classes, viz. first and second express, first, second, and third ordinary, and parliamentary or fourth class. The following is an example:—

	Express.		Ordinary.			Parliamentary.
	1	2	1	2	3	
Paddington, London, to Cheltenham.	*s. d.* 23 11	*s. d.* 16 9	*s. d.* 20 0	*s. d.* 15 0	*s. d.* 10 1	*s. d.* 9 6

The lines south of the Thames also charge express fares, and have third-class fares as well as what are called government fares.

It is a remarkable fact that those companies which charge the highest fares often pay the lowest dividends. Take, for instance, the case of the Great Eastern Company, whose fares are high and dividends low. Having said this much about this railway, let it be stated that the tendency of late has been in the right direction. As a view of the other side of the question, take the case of the North Eastern. The system is now the most complete monopoly in the United Kingdom; from the Tyne to the Humber, with one local exception, it has the country to itself,

and it has the lowest fares and the highest dividend of any large English railway.*

The conveyance of passengers at cheap fares was from the commencement of railways a great public concern, and it was soon found necessary that the legislature should take action in the matter. Accordingly, by the Regulation of Railways Act, 1844, all passenger railways were required to run one train every day from end to end of their line, carrying third-class passengers at a rate not exceeding one penny a mile, stopping at all stations, starting at hours approved by the Board of Trade, travelling at least twelve miles an hour, and with carriages protected from weather. This enactment greatly encouraged the poorer classes in railway travelling; but the companies were slow to carry out the new regulations cheerfully. The trains were timed at most inconvenient hours; to undertake a journey of any considerable length in one day at third-class fare was almost out of the question. In fact, a short-sighted policy of doing almost everything to discourage third-class travelling was adopted by the companies.

A traveller having started on a long journey, thinking to be able to travel all the way third class, would find at some stage of the route that he had arrived, only a few minutes perhaps, after the departure of the cheap train to his destination, with no alternative but to wait for hours or proceed by the express and pay accordingly. Moreover, the third-class carriages were provided with the very minimum of comfort. It

* Vide Report of Joint Committee.

was not seen by the railway executive of that time that the policy adopted was actually prejudicial to their own interests.

Take the case of the Great Western Company, proverbial for the want of liberality extended to third-class passengers. The *Times*, in a leading article published in 1842, thus described the sort of accommodation afforded a quarter of a century ago: "The manner in which the Great Western treat this class of passengers is described as worse than any other pursued, the only trains by which they forward them being used in the transit of coals, cattle, and merchandise of all descriptions. For instance, it is stated that a third-class passenger leaves Paddington in an open carriage, no difference being made to counteract wind or weather, at half-past four in the depth of winter. When he arrives at Swindon, he is detained upwards of an hour, and at last gets to Bristol, if the train keeps its time, in nine and a half hours, while the first and second class carriages make the journey in less than half the time. If a third-class passenger wishes to go on to Taunton from any place east of Bristol, it is alleged to be still more inconvenient, since he is detained from four to five hours in Bristol, and is kept on the road, at a moderate calculation, from fourteen to sixteen hours; whereas, on the other hand, first and second class passengers arrive at the same destination in six and a half hours."

It is not surprising that such a condition of things brought forth an Act of Parliament to deal effectively with the matter. The companies, however, seem to

have felt that the imposition of such conditions by the legislature was a hardship, and that it was their duty to evade the parliamentary regulations as far as they would permit of evasion. Very gradually, indeed, it came to be seen that a mistake had been made by the companies themselves, and that the third-class element was really worth encouraging. This, together with the action of competition, produced a beneficial effect. Many of the companies, nevertheless, still bestowed reasonable facilities with a very grudging hand upon their third-class passengers: and this policy was very generally adopted, until in the year 1872 the Midland introduced a scheme for carrying third-class passengers by all trains. This was such a new point of departure to be taken by one company, unassociated with the other companies, that it is not surprising that the Midland scheme was the subject of much severe criticism. The discontents were in a dilemma; they did not like to follow the policy of the Midland, but there was scarcely any alternative. The principal companies at length followed suit; but there are still notable exceptions, where by some trains first and second express fares only are charged. The result of this change has been to increase the number of third-class passengers to an enormous extent. To illustrate the case, it may be noted that while in 1871 there were 258,556,615 third-class passengers, in 1876 there were 426,950,034. It will thus be seen that the policy enunciated by Mr. Gladstone, that "as a rule the state, or individual, or company thrives the best which dives deepest down

into the mass of the community and adapts its arrangements to the wants of the greatest number," has been truly exemplified in regard to third-class railway traffic.

It was of course to be expected that there would be a considerable diminution in the number of second-class passengers, and very serious results were foretold by those who opposed the change. Other causes have been at work, but the following figures, showing the comparative receipts for passengers per mile in 1871 and 1876, go to prove that the new scheme has resulted in success :—

Year.	Miles open.	Total receipts from passengers.	Receipts per mile.
1871	15,376	£18,216,578	£1184
1876	16,872	23,057,731	1366

In a letter addressed to the chairman of the Metropolitan Railway in August, 1874, Mr. Gladstone said, "With moderation of fares I join in my own mind another change, namely, the substitution of two classes of passengers for three." At the time this was written the carrying out of such a proposal seemed to be very remote. It was not to be wondered at, therefore, that the bold resolution of the Midland, published in December, 1874, to abolish second-class carriages should have created some alarm in the minds of shareholders and some surprise on the part of the public. In advocating this experiment, the Midland very naturally and fairly alluded to the

satisfactory result of booking third-class passengers by all trains. It was, however, advanced that the great increase in the number of third-class passengers was mainly due to the increased wages of the working classes. Beyond the remote probability that the increase of the income of this section of the community would of itself, under any circumstances, have increased travelling by railway to any appreciable extent, it must be remembered that the price of commodities of every kind has been advanced very much in the same proportion that wages have. The fact is that a large proportion of the middle, and indeed the upper middle, classes avail themselves of the lower fares, their primary object being to travel as speedily as possible. If, however, the scheme of the Midland provides a maximum of comfort for a difference in the charges so comparatively small, it was natural to expect—and this has been proved by experience—that large numbers, formerly third-class passengers, would when using the Midland travel first class. Then, the Midland plan is conducive to punctuality, inasmuch as by the use of two classes, instead of three, time is saved in making up the trains, there is a saving in rolling stock, and a general simplification in all the working arrangements.

It may be noted in passing as remarkable that the introduction of Pullman cars and the abolition of second-class carriages so soon followed a visit made by the manager of the company, Mr. James Allport, to America. It would doubtless tend to public advantage if some of the other managers would take a

trip across the Atlantic, and come home with a leaf or two out of the railway book of our American cousins. Of course they might see many things to avoid, in addition to others it would be well to imitate. The other principal companies seem very loth to follow the leader in this most recent scheme of reducing the number of classes, and it is an important and interesting question for consideration whether the example will not sooner or later be followed by the other great railways. For many years previous to the inauguration of the Midland scheme the proportion of second-class passengers was gradually decreasing, as the following figures will show:—

Year.	First class.	Second class.	Third class.	Season tickets.
	Per cent.	Per cent.	Per cent.	Per cent.
1866	25·51	33·75	37·45	3·29
1871	22·63	29·67	43·20	4·50
1876	19·45	15·90	59·25	5·40

Now that third-class passengers can generally travel as quickly as first and second class, and as, moreover, the carriages on nearly all the railways are well and comfortably fitted up, the third class being quite equal to what the second used to be, the possibility is that the second class will slowly disestablish itself.

Before the introduction of Sir Rowland Hill's penny postal system the average charge for the conveyance of a letter was about ninepence. If such a reduction could be made in the case of letters with such marvellous success, it does not seem extravagant to anticipate that good results would follow a consider-

able reduction in passenger fares. It has been asserted on reliable authority that a passenger may be carried thirty miles at a cost of one penny. If this statement may be accepted with any confidence, it seems strange that the lowest charge for the conveyance of a passenger this distance is two shillings and sixpence. Travelling is to a very large extent optional. As trains are seldom filled, there is ample room for the companies to offer inducements to the public to travel. Excursion trains fill well and pay well, and the fact shows that were lower fares charged by ordinary trains many passengers might be attracted. By means of reduced fares buyers and sellers would be brought oftener together, and in larger numbers; and thus there would be an increased change of commodities, the railway companies sharing with the public in a twofold benefit.

There is another consideration which has some bearing on this question, viz., the cost of the carriages and the number of passengers each carriage will convey. Upon this point the following extract from the evidence of Mr. Farrar, given before the Parliamentary Committee, 1872, affords valuable information:—

"The original cost of a first-class carriage, with four bodies and four wheels, is from £380 to £400; of a second-class carriage, with five bodies, from £260 to £300; and of a third-class carriage, with five bodies, from £225 to £252. Then I have obtained the number of persons each carriage will convey, all the compartments being filled, and I find that a first-class carriage carries twenty-four persons, a second-class

fifty persons, and a third-class fifty persons; and, supposing all the carriages to be full, the receipts per mile of a first-class carriage are four shillings and threepence, those of a second-class carriage six shillings and elevenpence, and those of a third-class carriage four shillings and twopence, so that the receipts per mile from a third-class carriage full are as large as those from a first-class carriage." This estimate is not now strictly applicable, as more money is expended on third-class carriages than was the case six years ago. At the same time the second-class carriages have been improved, so that for the purpose of making a comparison the figures may be said to still hold good.

The difference which exists between the rates for merchandise and the fares for passengers is somewhat remarkable. The charge for the conveyance of a ton of bacon from Manchester to London would be thirty-five shillings, or thereabouts; while for a ton of second-class passengers, taking fifteen as twenty hundredweight, the charge would be twenty-four shillings each = £18. Considering the fact that in the carrying of passengers no collection or delivery has to be effected, it has been suggested that the charges should be more assimilated. This is an important question for railway companies to consider.

As shown at some length in a subsequent chapter, the fares for passengers are much lower on many continental railways than in this country.

Suggestions have been made in favour of uniform fares irrespective of distance. For example, Mr.

Raphael Brandon, in a cleverly written pamphlet published some years ago, states "that fares for any distance of one shilling first class, sixpence second, and threepence third class above ten miles, or, for any distance under ten miles, fourpence first, twopence second, and a penny third, would be remunerative to the shareholders and beneficial to the public." That the adoption of such a scale of fares would be beneficial to the public there is little doubt, but it is not so certain that the other predicted result would be so easy of attainment; but while, under existing circumstances, such a complete radical change in the system is, for obvious reasons, impracticable, the principle is a good one, and there seems no sufficient reason why it should not to some extent be adopted with advantage. In the most modified form the scheme is considered by many as a visionary one; so was the introduction of the penny postal system. The average fare paid by passengers during the year 1876 was about ninepence three farthings. This proves, at least, that there is a possible opening for a little more uniformity.

The introduction of season tickets has been a source of considerable revenue to the companies and great advantage to the public. In 1876 there were 394,427 such tickets issued in the United Kingdom. The benefits of this system might be extended with mutual profit. More elasticity is, however, desirable in the entire arrangements. Some of the Scotch railway companies are much more liberal with the public in this respect than are some of the English companies.

For example, the Caledonian Railway Company issue workmen's weekly tickets, fortnightly tickets to Bridge of Allan and Stirling, monthly tickets to sea-bathing quarters, etc. There are large numbers of professional and commercial men, and working men too, whose avocations necessitate their absence from home from Monday morning till Saturday night. To such as these, periodical tickets on moderate terms, available for one journey in each direction per week, would be a great convenience, and the companies, by the introduction of such a scheme, would insure a large addition of traffic. By the use of the coupon system any abuse of such an arrangement might easily be prevented.

Having spoken of the cost of tickets, some reference may now be made to the difficulty there frequently is in getting them. Most people who have travelled must have had many uncomfortable experiences at the railway booking-office window. Many a man's patience and temper have been tried whilst waiting for the time to issue tickets to begin. At many large stations it is a very common experience for a crowd of passengers to be waiting at the booking-office window to be served. Of course nearly everybody wants first place; for as only a few minutes are left before the train starts, and as the guard may have already shouted, "Take your seats, please," "Any more going on?" considerable anxiety is manifested on the part of the passengers; the proper carriage has to be found, a watchful eye has to be kept on luggage, delays occur probably through the booking clerk not having suffi-

cient change, there is a dispute as to change which has been given, a passenger has come to the wrong booking office and won't believe it, a discussion is engaged in as to whether certain members of some large family going by the train are over or under twelve years of age, a ticket has to be written for a dog, all followed by a good deal of pushing, confusion, and excitement, and it is only after a final scramble that the train is duly loaded and sent off at the time advertised. The law provides that the companies shall exhibit at their stations a list of fares charged for tickets. In many cases this is a great assistance to passengers. In other instances there is no little difficulty in discovering the whereabouts of the fare table. It will sometimes be found "round the corner," in the most out-of-the-way position possible, perhaps mounted so high as to necessitate the use of a powerful magnifying-glass or a ladder. But where is the necessity for this written list of fares, when it would be so easy to print the fares on the tickets (the plan adopted by the Metropolitan Railway)? The companies have surely somewhat magnified the small amount of extra trouble and expense necessary to effect this improvement. Were the fares printed on the tickets much time would be saved, greater accuracy insured, and not only would protection be afforded to the public against overcharge, but the much-abused booking clerks, who sometimes find themselves with a balance on the wrong side, would in some measure be protected also. The selling of tickets at other than railway stations has already been inaugurated

by some of the companies in London and in the large provincial towns. The plan requires to be largely extended. Something needs to be done to prevent the hurry, bustle, and confusion at the railway station booking office. Nothing would perhaps tend more towards improvement in this direction than that an opportunity should be afforded to passengers for purchasing tickets at their convenience at certain appointed places in every important town. The companies have a large number of parcels receiving and inquiry offices, and these might well be utilized for the purpose.

There is a movement in the right direction, for the railway companies in Scotland issue first-class tickets in lots of not fewer than twenty. It has remained for the Great Eastern to be the first amongst the English companies to introduce a similar system, but upon a more advantageous basis. The following are the terms in which the Great Eastern made their announcement in September, 1877 :—

"For the convenience of passengers, packets containing six up and six down single journey tickets (first, second, or third class) will, on and after the 1st October, be issued available between Liverpool Street or Fenchurch Street and Stratford, or any station on the Loughton line from Leyton to Loughton inclusive. Each packet contains twelve single journey tickets, available for six up and six down journeys, and are issued at a reduction of about 8 per cent. on six ordinary return tickets. The tickets may be used on any day up to but not after the 31st December, 1877."

It is peculiarly gratifying to refer to this important step, taken by a company whose general policy, as regards the public, has hitherto been characterized as a narrow one.

But the whole ticket system needs simplification. Many of the vexing restrictions imposed by the bye-laws of the companies need to be removed. With only two classes, as on the Midland, much improvement might be effected. Take the case of return tickets. Some are available for two days, others for a week, some for a fortnight; in some cases a month is allowed, sometimes the time is extended to six months; but why should there be such a variety of limitations? If the proper amount be paid for the ticket, and only one passenger uses it, what more can be fairly required? And then, say the companies, "this ticket is not transferable." The probability is that this bye-law is occasionally overlooked, but why the attempt at restriction? We could understand its consistency were a return ticket issued to a man according to his weight; for then the company might carry a short, thin, spare man, of say 112 lbs., by one journey, but the ticket might be used for the return journey by a perfect Daniel Lambert. Again, in many instances there is no advantage in taking a double ticket, as the price of two single ones is charged. It really seems something like a joke that such a plan should ever have been put into force; and when it was, in the first instance, announced that the issue of return tickets, at exactly double the price of two single ones, was part of the new policy of the Midland Company, it could scarcely be credited. Where is the inducement? The only possible saving to the passenger is in having to book once instead of twice, and this is more than counterbalanced by the

danger of the bit of card-board, for use on the return journey, being lost. The principal benefit is received by the railway company, who in issuing a return ticket secures the fare in advance. The question of return tickets is doubtless the weak point in the Midland programme. Much has been done by this popular company, and we must not expect it to make its strides in reform too rapid.

There is one other important point in connection with this view of the ticket question. If a passenger has booked to a certain place, he is not permitted to break his journey on the way, even though the train may stop, without forfeiting his ticket, a regulation which has frequently caused much annoyance and disappointment. The companies appear to delight in restricting the freedom of their customers.

The arrangements for booking passengers long distances, whereby they are relieved of much trouble as well as expense, are worthy of mention. This system is now so complete that not only is the traveller enabled by one payment to travel from Land's End to Inverness, or from Londonderry to Dover, but he can purchase a ticket at many of our principal stations which will take him to some of the most important towns on the continent. For example, a passenger can procure a ticket at Belfast which will take him to Dresden in Saxony, going by steamer to Barrow-in-Furness, Midland Railway to St. Pancras, thence from Bishopsgate Street Station by Great Eastern Railway to Harwich, by steamer to Rotterdam, thence by railway to destination.

A passenger can also book through from London to Rome *viâ* Paris and Mont Cenis at a fare of £10 10*s.* 3*d.* first class, £7 14*s.* second; or to Brindisi —fare, £11 17*s.* 3*d.* first class, £8 12*s.* 6*d.* second.

In connection with railway travelling, nothing is perhaps more remarkable for its rapid growth than the tourist system. As almost everybody knows, during the summer months the companies issue tickets to the seaside and other places of popular resort. Much as might be said in praise of this arrangement, it is still subject to many of the restrictions already alluded to with regard to ordinary tickets. The tourist may bethink himself that he would like to halt for a day or so at some interesting place *en route* which the train has stopped at, but the following regulation says "No":—"These tickets are only available for the stations named upon them, and do not entitle the holders to break their journey at any other points than those named in the programme" (London and North Western tourist rules). Then, the passenger *must* go on the same day and by the same train for which the ticket is issued, and must not exceed the time for which the ticket is available. Frequently there is little advantage as to the fare, so that in some cases it will answer the purpose for the passenger to buy his freedom and simply pay as he goes.

Not only do the railway companies themselves make special arrangements for passengers during the summer season, but there are others who have taken an important position in providing facilities such as to

attract tourists and popularize the system. The arrangements made for the accommodation of those who wish to travel either for pleasure or profit, or both, by the enterprising firms, Messrs. Thomas Cook and Son, and Messrs. H. Gaze and Son, London, are especially worthy of mention. Both names are now of world-wide celebrity; and were there sufficient space at the disposal of the author, it would scarcely be necessary to enter into a detailed account of the system. But some of the leading features may be touched upon. First of all, it will be well to remark that there is no intention of extolling one to the disadvantage of the other. From the fact that it was the first established, the system of Messrs. Cook and Son enjoys the most extensive connection; but as regards the facilities afforded and the personal and polite attention paid to their patrons, if there is a distinction it is without a practical difference. Of course, the two are competitors, Messrs. Cook being agents for the Midland, and Messrs. Gaze for the London and North Western Company.

As the season approaches for an annual vacation, the inquiry arises, "Where shall we go?" Having decided this part of the business, you have only to inform one of the above-mentioned firms what portion of the world you wish to explore, what time you have at your disposal, and for a comparatively small sum either of the gentlemen named will enter into a contract to pay your railway and steamboat fare and your hotel bill; in many cases arrange for a conductor to accompany you (if there be a party), to attend to

your luggage, act as interpreter and guide, and render services in other ways too numerous to mention. In taking a journey under such circumstances the traveller may at once dismiss from his mind many of the anxieties usually attendant on travelling in the ordinary manner. Having paid your money, you present yourself at an appointed time and place with your luggage, and may make up your mind for thorough enjoyment. There is much to be said for, although much is said against, the plan of joining a party of tourists, for you lose some of your liberty of action, and must go on and stop according to programme, but you make sure of having company in your travels, which is a very great advantage, and you may rely upon it that you will not miss the best points of interest.

Then you have no need of a phrase-book—a rather dangerous article, by the way. Such at least the writer found it on his first trip to the continent. According to advice given and received a phrase-book was secured, and certain phrases were mentally repeated again and again for the sake of safety, when all at once the thought suggested itself, "It's all very well to put questions in a language you don't understand, but how about understanding the answers?" The company of an interpreter is thus a great advantage. Some folks like to pursue the singular tenor of their ways, but others prefer sociability. That the tourist system is very popular is proved by the extensive and distinguished patronage received. Cook's and Gaze's tourist parties have explored nearly every

point of interest in the world. Want of space forbids an attempt to describe at length many of the most popular trips, although this might be done with little fear of wearisomeness to the reader.

First of all, it should be explained that each passenger is provided with a little book containing a series of coupons representing different stages of the journey undertaken; these tickets or coupons are delivered up as occasion may demand. The trouble which the passenger is thus saved is not the only advantage, for the through fare charged by the tourist agent in a large number of instances will be found to be much less than the ordinary fares for the different sections of the journey. Certain hotels, generally with superior accommodation, are fixed upon, and for these coupons are also provided, the charge being eight shillings or eight and sixpence per day, varying somewhat according to circumstances. These figures apply to principal hotels in most of the chief towns of Europe. The charges thus fixed are moderate; the hotel keepers readily accept the coupons, and it is said that tourists with these lodging passports receive, if any difference is shown, more attention than the ordinary customers. Not the least benefit to be derived is that there will be no overcharge in, and consequent dispute about, the hotel bill.

The following is a general outline of a personally conducted tour to Belgium, the Rhine, Switzerland, and Paris, such as arranged by Messrs. Cook during the summer of 1877. The fares, including travelling

and hotel accommodation, were—first class, £24; second class, £21 10*s*. The party left London (Ludgate Hill Station) on Monday, June 18, for Antwerp, and from thence proceeded to Brussels, Cologne, Wiesbaden; the beauties of the Rhine having been enjoyed, the journey was continued to Heidelberg, Baden-Baden, Strasburg, Bâle, Lucerne, Interlacken, Berne, Lausanne, Geneva, arriving at Paris on July 6th. Messrs. Gaze, who conduct similar excursions to that described, are particularly noted for their personally conducted tours to the Holy Land, *viâ* Boulogne, Paris, Marseilles, and Naples, to Egypt, the Pyramids, Suez Canal, Athens, and Constantinople, returning by the Danube, *viâ* Vienna and Paris, to London. Fare first class, 140 guineas, including travelling, hotel, and incidental expenses.

It only remains for an excursion to the North Pole to be arranged, for it is intended that the present year (1878) should see Cook's seventh annual tour round the world. The 1877 tour, at a charge of £335, was arranged to commence on August 25, the route being as follows :—Liverpool, New York, Philadelphia, Niagara Falls, Chicago, Salt Lake, San Francisco, Yokohama, Hongkong, Pointe de Galle, Calcutta, Benares, Agra, Delhi, Cawnpore, Lucknow, Bombay, Suez, Cairo, Alexandria, Naples, Rome, Florence, Paris, London, where the party was due March 21.

Those who wish for further information cannot do better than apply to either of the firms named for their Guide to tourists, published monthly, from which they will be able to ascertain how and at what cost

they may go almost everywhere and anywhere, with a maximum of pleasure at a minimum cost.

And now as to other branches of the passenger train service. In olden times horses were used as the chief motive power for the conveyance of passengers and merchandise, but now the chief motive power is used for conveying horses as well as carriages. There is a considerable traffic of this kind, more especially in the taking of horses to and from races. It may be taken as about an average that the rate of conveyance is threepence per horse per mile, with a minimum charge of five shillings. In other words, multiply the third-class, *i.e.* parliamentary, passenger fare by three, and you may arrive at about the charge for conveying a horse; and here it may be noted that no amount beyond £50 can be recovered for the loss of, or injury to, a horse during transit, unless an extra charge for insurance be paid.

Carriages are conveyed at a rate of about fourpence halfpenny per mile, but there are considerable variations, so that this is merely approximate.

For the carriage of dogs the principal companies have a uniform scale, and the following may be taken as generally applicable :—

									s.	d.	
Not exceeding 10 miles									0	3	each.
Above 10 miles, and not exceeding 20 miles									0	6	„
„	20	„	„	30	„				0	9	„
„	30	„	„	40	„				1	0	„
„	40	„	„	80	„				1	6	„
„	80	„	„	100	„				2	0	„
„	100	„	„	130	„				2	6	„
„	130	„	„	150	„				3	0	„
„	150	„	„	200	„				4	0	„

The charges for horses, carriages, and dogs are, as will be seen, reasonable, and this part of the subject must be dismissed to deal with the question of a more important branch—the parcels traffic.

The companies appear to have paid little attention to the development of traffic in small parcels. It is not a little surprising that this should be so, and the shareholders, no less than the public, have been the losers in consequence. So lax, indeed, have the authorities been in this respect that agencies, actually using the railways to carry out their work, have been established in different parts of the country, and these agencies or parcels delivery companies have done good service to the public at the same time that they have, in the railway companies' own territory, made good profits. As to these parcels agencies more anon. The post-office, too, has to a considerable extent taken the place of railways.

Let us examine the different modes of dealing with parcels and inquire into the relative charges for conveyance. First of all, what is the programme of the railway companies? As is well known in London and the chief towns, there are receiving offices for parcels where in many cases charges are made for booking. All the companies have exceptional rates between certain places and for certain articles. There are, for example, special rates for milk, fish, dead poultry, butter, fruit, vegetables, etc.

With regard to the rates for general parcels traffic, most of the companies agree to a mileage scale. This uniformity is especially noticeable on railways north

of the Thames, including the London and North Western, Midland, and Great Western, etc. The following figures may be taken as the usual average:—

For distances of	1 lb.	2 lbs.	3 lbs.	4 lbs. to 7 lbs.		Above	
Miles. Miles.	s. d.	s. d.	s. d.	s. d.	lbs. lbs.	s. d.	lbs. d.
1 to 30	0 6	0 6	0 6	0 6	7 to 24	0 6	24 ¼
31 „ 50	0 6	0 6	0 6	0 8	7 „ 16	0 8	16 ½
51 „ 100	0 6	0 6	0 8	0 10	7 „ 16	1 0	16 ¾
101 „ 150	0 6	0 9	1 0	1 3	7 „ 15	1 3	15 1
151 „ 200	0 8	1 0	1 3	1 6	7 „ 14	1 6	14 1¼

Additional.

For light, frail, and bulky packages 50 per cent. is added to these charges.

From London to certain places "van parcels" are carried, generally once a day, at half the ordinary rates. It is a remarkable fact that whilst, as already shown, a railway company will carry a dog, which might be a bloodhound or Newfoundland, ten miles for threepence, for the conveyance of a parcel weighing one pound sixpence is demanded. It is true that parcels are delivered, in some cases without extra charge, at the residence of the receiver, whereas dogs are not. But this would seem scarcely sufficient to account for a difference of 100 per cent.; and there is another important consideration, viz., the small number of dogs conveyed, as compared with the large number of parcels. Again, look at the difference between the handling of a parcel, or fifty parcels, and the care necessary to be bestowed in connection with the conveyance of a live, if not savage, animal.

It is not surprising that competitors have sprung up in different directions. For instance, if sent through the post-office, the charge for the carriage of a book parcel, weighing one pound, from Land's End to John-o'-Groats, would be fourpence; but if sent a single mile by railway agency, the charge would be sixpence. But the parcels delivery or packed parcels companies, already alluded to, have in a still greater measure taken the place of the railway companies in the carriage of small parcels, and particularly we may instance Sutton and Co., of Aldersgate Street, London. From very small beginnings this concern has grown into enormous dimensions, having connections in almost every town of importance in the United Kingdom, as well as in many of the great centres of the continent of Europe and the colonies. Parcels, in many cases by hundreds, are received at a central office, where they are sorted, packed up together for the various destinations, so as to make a small number of consignments; they are then forwarded by railway at so much per hundredweight to the agents of the firm in the different towns, who unpack them and deliver them to whomsoever they may be addressed. From the very commencement of this system the railway companies did what they could, and continue to do what they can, to check the action of this and similar agencies by charging all consignments at as high a rate per hundredweight as their parliamentary powers will possibly permit. They would not make their terms with the public more liberal; at the same time, they have used their utmost power to perpetuate

their monopoly, and yet we have the remarkable fact that the companies carry parcels for the packed parcels agencies, whilst these agencies charge less for carriage to the public than the railway companies do themselves. The following are the rates of Sutton and Co. to a town of some 20,000 inhabitants about fifty miles from London, and to which it is no unusual thing for 2000 parcels to be sent in one month :—

2 lbs.	4 lbs.	7 lbs.	12 lbs.	20 lbs.	30 lbs.	56 lbs.	112 lbs.
3*d.*	4*d.*	5*d.*	6*d.*	8*d.*	10*d.*	1*s.*	1*s.* 6*d.*

In connection with the same town—and the same arrangement is carried out at other places—a contract is entered into with any of the principal tradesmen who may wish to avail themselves of it, which entitles them, for the payment of ten shillings in advance, to have sent from London, during a month, as many parcels under fourteen pounds as they please. In cases where parcels are forwarded somewhat less frequently than others, the charge for this accommodation is fixed at seven and sixpence per month. The advantages which these parcels companies give to the public might be increased but for the fact, already mentioned, that the railway companies charge very high rates indeed for packages forwarded and received through these parcels delivery agents. Thus there seems an attempt to prevent other people affording facilities to the public which the railway companies themselves are not prepared to offer. The parcels delivery companies deserve encouragement.

It is in the hands of the railway companies to

develop the traffic in small parcels to a considerable extent, but this can only be effected by inducements being offered such as will be sufficiently attractive. In the neighbourhood of large towns, especially, a large business might be done. A rate of threepence or fourpence for parcels under seven pounds for any distance under ten miles, would in all probability pay the companies far better eventually than do the present charges.

In an article published in the *Fortnightly Review* of July, 1875, the author made the following remarks:—"In the case of newspapers some of the companies carry single copies at a halfpenny each, and parcels of newspapers at very low rates; for this purpose, stamps or labels, varying in value from a halfpenny to tenpence each, are used. In order to save themselves and the public a vast amount of unnecessary trouble, the companies would do well to introduce a general system of pre-payment for the carriage of parcels, by the use of stamps, to be obtained at any time. A system of numbering might be adopted, and by this means the companies could account for the parcels carried, and at any time be able to trace their delivery. In the introduction of such a system some difficulties might arise, but not such as would be insurmountable."

On September 6, 1877, the half-yearly meeting of the Midland Great Western (Ireland) Railway was held at Dublin, when the chairman, Sir Ralph Cusack, remarked as follows:—"They had inaugurated the stamp parcel system, which was being adopted by

one of the leading English companies and a Scotch company, and the directors were in communication with other boards with the view of adopting a uniform stamp parcel rate for the United Kingdom, under which, for say a fourpenny stamp, a parcel of two or three pounds would be carried from any town in the United Kingdom to any other town."

The advantages of such a system must be obvious, and great praise is due to the Irish company mentioned for its introduction. As yet it has not been made public that it is intended for any movement in the same direction to be taken by either of the English companies.

Some allusion may here be made to the facilities afforded for the conveyance of parcels from London to the continent of Europe, to America, and other parts of the world. Sutton and Co., London, already alluded to, and G. W. Wheatley and Co., London, are amongst the principal agents. As a few quotations will show, the charges are generally very moderate :—

				per lb.
				s. *d.*
To Bombay, Calcutta, etc.,	under 1 cubic ft.	and 9 lbs.	weight	1 0
Hongkong, Yokohama	„ 1 „	12	„	1 3
Adelaide, Sydney	„ 1 „			1 3
				each
				s. *d.*
Bucharest	parcels not exceeding	2	„	3 6
Paris	„	2	„	1 6
„	„	10	„	2 2
Berlin	„	4	„	2 8

These figures do not, of course, include the cost of insurance, or small charges in certain cases for book-

ing, etc. The plan adopted is for parcels intended for abroad to be sent to one of the central offices in London, belonging to the parcels agencies, together with a proper declaration on forms supplied by the agency, stating the name and address of the sender and receiver of each package, the nature of the contents, the value for the purpose of insurance, etc. The parcels are then packed up together and sent to certain principal centres for distribution. To the continent there is a daily parcels express. To America packages are despatched about three times a week; to the Cape, weekly; to Australia, monthly; and so on according to the respective dates fixed for the sailing of steamers, etc.

CHAPTER XVI.

RATES, ETC., BY GOODS TRAIN.

In the preceding chapter it has been pointed out how in various ways the fares and rates charged by passenger train concern the public in a very considerable measure. Important, however, as is that part of the subject, the question of the cost of carriage of merchandise is perhaps one of still greater moment. The price of every commodity is affected by the expense necessary to convey it from place to place. The cost of carriage is a very important element to be taken into consideration by the trader when fixing the prices to be charged to the public. Indeed, in connection with all business transactions, one of the primary considerations is, and must be, What are the facilities for communication? The importance of the question cannot thus be over-estimated. Now, it is not only necessary that there should be adequate facilities and reasonable charges, but that every possible information upon the entire subject should be readily obtainable. With regard to passengers, some information is afforded as to when, how, and at what

charges they will be conveyed. In respect to merchandise the case is not the same by any means. Notwithstanding the great desideratum that every information should be afforded, and the fact that the legislature has enjoined the railway companies to provide it, the case frequently is that particulars required can only be obtained with difficulty and in very small instalments. But further, the whole system of rates for goods traffic—it may be said that this is unavoidable—is so complicated and so incongruous that it is not every one who can be confident as to the proper construction to be put upon the rates, minimums, exceptions, restrictions, and multitudinous provisions in connection therewith when a list of them has been procured. Thus it comes to pass that many people have to exercise a good deal of faith in connection with their railway accounts, and simply take them as correct. If a somewhat unusual inquiry be made as to the why and the wherefore of certain charges, the trader will in all probability receive an answer leaving him as much in the dark as before. It may be answered on the part of the railway interest—and railway managers are remarkable for an almost inexhaustible supply of satisfactory explanations—that this is an exaggerated statement of the case, but an appeal for support of this assertion need only be made to those traders who have had most experience in the matter, viz., the parties most interested. Many who represent the trading interest have felt themselves bound to say, "We look upon the whole matter of railway rates as

'chaos.' We have come to the conclusion that if our accounts are somewhere near the mark we must pay; it's of no use contending with a railway company." The fault, however, let it be said, is much more attributable to the system, which is the growth of many years, than to those who administer it. It will be the object in the following remarks to explain briefly the various modes of charging for the conveyance of merchandise, and thus to provide what it is hoped will be found, in some degree, a guide to the railway rate system.

When railways were in their infancy, it was thought that the tolls, as applied to a certain list of articles of merchandise, authorized to be charged by the special acts under which the different lines were made, would be a sufficient guide to the companies in making their charges. It will be well to inquire how goods are classified in the Acts of Parliament. The classification is not precisely the same in all the Acts, and the following is given as a fair example. It is proposed to deal in the first place with the classification of goods, leaving the matter of tolls to be dealt with subsequently:—

"Class 1. Compost, dung, all sorts of manure, lime and limestone, and all undressed materials for the repairs of roads or highways.

"Class 2. Coal, coke, culm, charcoal, and cinders; all stones for building, pitching, and paving; all bricks, tiles, slates, clay, sand, ironstone, and iron ore, pig iron, bar iron, rod iron, hoop iron, and all other similar descriptions of wrought iron and iron castings

not manufactured into utensils or other articles of merchandise.

"Class 3. For all sugar, grain, corn, flour, hides, dyewoods, earthenware, timber, deals, metals (except iron), nails, anvils, vices, and chains.

"Class 4. For all cotton and other wools, drugs, manufactured goods, fish, and all other wares, merchandise, articles, matters, or things."

As there was in this list, both on account of its incompleteness as well as its vagueness, such a large margin for the exercise of discretion, or perhaps indiscretion, the companies found in the early years of the system that it was absolutely necessary to prepare a more comprehensive catalogue of the different species of merchandise, which should be, first, as complete a guide as possible to the officials in making charges to the public; and, secondly, an authoritative table, recognized by all, or nearly all, the companies, for the regulation of their mutual transactions.

The Railway Clearing-house was fixed upon as the medium and authority for the preparation of such a list, and what may be called the revising committee is composed of the goods managers of the various companies who are parties to the clearing system. Under such auspices there is issued to the companies, not to the public, at the commencement of every year, a "general classification of goods by merchandise trains on railways." This classification is an alphabetical list of almost every species of goods, ranging from "rats, live, in cages," and "elephant's teeth," to "steam engines" and "cannon balls." It also

contains various and numerous regulations bearing upon the charges for the conveyance of goods generally.

It would perhaps be out of place to attempt to describe in any considerable detail the entire ramifications of the system. At the same time, it will be considered a legitimate undertaking to describe general principles.

Coal is treated in a manner quite distinct from general merchandise. In the first place, the waggons used belong either to the collieries or to coal merchants, and specially low rates are charged by the railway companies. The carriage is always prepaid by colliery owners, who charge their customers so much per ton at the destination station, or a rate per ton at the pit's mouth, adding the rate per ton for carriage, and a charge per ton for the use of trucks. Settlements with railway companies are thus much simplified. The fact that the companies have to return the waggons empty to the collieries without charge is a difficulty which they would like to overcome. The saving would, of course, be immense if the waggons could be loaded in both directions.

Other raw materials and manufactured goods are assorted into three principal divisions :—1. Mineral class; 2. Special class; 3. Classes 1 to 5.

1. This classification applies to pig iron, sand, chalk, bricks, and such like. In this class, goods are carried at low rates in lots of not less than four tons, and the loading and unloading have to be performed by the owners.

2. Goods in this division are what the companies

call "S. to S.," or "station to station;" that is to say, the goods are not collected from the sender at the forwarding station or delivered to the consignee at the receiving station, except by arrangement. Under this heading are included bar and sheet iron, grain and flour, artificial manures, timber, etc. Exceptional rates are arranged for lots of not less than two tons.

3. This is the most important division, comprising as it does the great bulk of the miscellaneous merchandise daily forwarded by railways. According to the nature of the goods—the points to be considered being liability to damage, portability, value, etc.—they are placed in one or other of five classes, the first class being the lowest. The following will suffice by the way of illustration :—

Class 1.	Class 2.	Class 3.	Class 4.	Class 5.
Sugar, raw. Soap.	Paint in casks. Coffee.	Hardware. Paper collars.	Tobacco. Cheese, loose.	Telescopes. Pianos.

In some instances there are two classes for one article; *i.e.*, one rate when conveyed at "owner's risk," and another at "company's risk." To this matter of "risk," occasion will be taken to refer again. Then, in some cases, goods are placed in a higher or lower class, according to the weight of goods in each consignment, and cheaper rates are charged when goods are packed. With regard to these five classes, the companies, at stations where they have a staff for the purpose, collect goods, within a certain radius,

from the sender at the forwarding station, and deliver them to the consignee at the receiving station. As already remarked, we cannot go beyond the indication of general principles, but what has been said will perhaps suffice to point the way to ascertain information which those concerned may need with regard to this classification question.

The classification is the guide or index to the rate-book. At each station one of these rate-books is kept, or more than one, as circumstances demand. It contains a list of most of the other stations in the kingdom, arranged in groups in order of the respective railway systems. The rates per ton are written in, and correspond to the Classes 1 to 5 as described above. Rates are also given for "mineral" and "station to station" goods, as well as numerous and exceptional rates for any particular kind of traffic which it may be desired to cultivate. To make the case more clear, something like the rates in each class for a distance of 200 miles are given below:—

Class 1.	Class 2.	Class 3.	Class 4.	Class 5.	Station to station.	Mineral.
35*s.*	40*s.*	50*s.*	60*s.*	75*s.*	22*s.* 6*d.*	15*s.*

As it could not be expected that railway managers should possess a perfect acquaintance with the precise nature of all the innumerable species of goods which are from time to time conveyed, it is not a matter for much surprise that in the classification there exist some remarkable anomalies. Of course, the public tendency is to reduce the rates in the direction of from 5 to 1; but as is natural, perhaps, the in-

clination of the companies is to push forward from 1 to 5. The contest going on may to some extent explain the following inconsistencies.

The classification provides that the articles enumerated should be charged thus:—

Class 1.	Class 2.	Class 3.	Class 4.
Garden rollers	Frying-pans.	Field rollers.	
Weights for weighing, under 56 lbs.	Clock weights.	Iron ladles.	
		Umbrella-sticks.	Walking-sticks.

In order that a comparison may be made, let these articles be applied to the rates per ton of thirty-five shillings, forty shillings, fifty shillings, sixty shillings respectively, as quoted above. It is somewhat difficult to assign any sufficient reason for a difference of fifteen shillings per ton, or 40 per cent., between the rate for a garden roller and the rate for a field roller, or why frying-pans should have an advantage of ten shillings as compared with iron ladles, or why weights for weighing should be treated better than clock weights. And then to umbrella sticks is given "an undue preference" when compared with walking-sticks. It will be seen that the walking-stick is subjected to a "prejudice or disadvantage" of 20 per cent. And yet, is there not here a distinction without a difference? Did space permit, the list might be considerably extended. Sufficient has, however, been said to show that in order to put the

rates on a more equitable basis, notwithstanding the fact that the railway companies consider it almost beyond criticism, considerable revision of the classification is necessary. The managers would do well to take the public more into their confidence.

The classification is constantly undergoing revision, and the removal of a certain class of goods to another and higher class becomes a very serious matter for the trader. Moreover, as a rule, no notice is given of such alterations. It is only when they have been put in operation, and the new and increased charges are entered in the bill, that there is any knowledge as to the changes which have been effected.

The question of the classification of goods received special attention at the hands of the Joint Committee of the Houses of Lords and Commons, 1872. In his evidence before this Committee, Mr. James Allport, the popular manager of the Midland Railway, remarked that "they [traders] have no reasonable grounds of complaint" ("Minutes of Evidence," Question 4292). Whether the position thus taken by the leading general manager upon this question be a tenable one, it is not the intention to now stop and inquire. What may be especially pointed out is, that the companies appear to do all they can to prevent the public from forming an opinion as the reasonableness or unreasonableness of the provisions of the classification, which, while it is the very basis which rules the rates, is "private and not for publication." Very seldom, therefore, is it submitted to the public gaze; so that it is not so much because there are no

grounds for complaint, as that the necessary data for forming a judgment are so difficult to obtain. It is not easy to see the necessity for so much privacy in connection with a matter of such vital public importance. The classification, regulating as it does the charges for carriage of nearly all the merchandise of the kingdom, is of such a nature that, instead of being treated as a list of private regulations, it ought, in the interests of the public, to be as freely circulated as passenger-train time tables, or the price lists of any manufacturing establishment. The position is truly most anomalous. It would seem almost as reasonable were the companies to make their time tables "private and not for publication," or for the price list of any manufacturing establishment to be "private and not for publication." The trader can, by a comparison with the manufacturer's price list, test the accuracy of the accounts submitted to him for payment. But there is no such general facility in regard to railway charges. The accounts must, in a large degree, be accepted as correct.

It should be remarked in passing that, though the Railway Clearing-house classification is in pretty general use, it is not considered to be binding upon the companies as regards local traffic. The companies are at liberty to make what charges they please to and from such of their own stations as are not competitive.

Whilst the companies are careful to give the very minimum of information, let it be repeated that the legislature has laid it down as a rule that the public

ought to be able to ascertain what they are charged and why they are charged. To this end it is provided in the Railway and Canal Traffic Act (36 & 37 Vict. c. 48), s. 14, as follows:—

"Every railway company and canal company shall keep at each of their stations and wharves a book or books showing every rate for the time being charged for the carriage of traffic, other than passengers and their luggage, from that station or wharf to any place to which they book, including any rates charged under any special contract, and stating the distance from that station or wharf of every station, wharf, siding, or place to which any such rate is charged. Every such book shall, during all reasonable hours, be open to the inspection of any persons without the payment of any fee."

There is nothing vague or uncertain here, but the companies do not act in accordance either with the sense or spirit of the enactment. The author knows from experience that the opportunity of getting a sight of this rate book or books is not so easy a matter as might be supposed. For instance, he had occasion, not very long ago, to visit some of the principal towns in England, for the purpose of procuring certain information as to rates. It was evident, however, that the officials had not been duly impressed with a proper sense of the rights of the public. The consequence was that, with some exceptions, the experience was somewhat as follows:—On application to Mr. A. of the rate department, Mr. B. (some superior officer) was consulted, who, after some little delay and a

rather suspicious glance at the applicant, straightway commenced a sort of cross-examination as to why and for whom the rates were needed, with a hint that the information could only be furnished to an intending consignor of goods. There seemed to be in the mind of the railway official the idea "private and not for publication," which, as already stated, attaches to the classification. In more than one case it was necessary to produce a copy of the Act of Parliament, which was ready in case of necessity. Reference will be made in a subsequent chapter to the general power of the Railway Commissioners appointed in 1873; but, with regard to this particular question, an extract may here be given from their first annual Report, as follows:— "Visits have been made under our directions to several stations on different railways to see if they were supplied with books in proper form, and at very few stations visited was it found that what is required by the Act to be done had been duly attended to." Very recent experience proves that there has been little improvement. Considerable evasion is practised, and where there ought to be a cheerful assistance rendered in the procuring of information, especially if it be thought that something a little unusual is required to be known, it is just the reverse. The public have good cause for complaint, and may reasonably demand that such steps shall be taken as will insure the proper carrying out of the provisions of the law. It ought to be imperative that at all the stations a copy of the rate-book and the classification should be kept in some place readily accessible to, and solely

for the use of, the public. Traders ought not to be subjected to such inconveniences as now prevail in connection with the rate question.

It is evident from the Report of the Joint Committee above mentioned that much importance was attached to this question of the classification of merchandise, as the following extract from this Report will show:—

"Another suggested reform consists in a fresh classification of rates, and it has been proposed that the classification adopted by the companies themselves in their Clearing-house should be substituted for those in the special Acts of the companies. It is admitted that the classification contained in these Acts is extremely imperfect; that many articles are not inserted in them at all; and that the Clearing-house classification is more complete. . . . It shows that railway managers can, when it is their own interest to do so, make one classification for all railways not only uniform, but much more complete and satisfactory than the various classifications in their several Acts; if such a classification were generally adopted, it would be a great step towards publication and general knowledge of the actual rates; . . . the present loose and imperfect classification of rates, in the special Acts, leaves it in the power of the companies arbitrarily to place in one class or another, or to remove from class to class, the many unenumerated goods.

"It seems, therefore, desirable that the companies should be compelled by law to adopt as between them-

selves and the public the Clearing-house classification, and to adapt their statutory rates to it. But it further appears that the Clearing-house classification is altered from time to time to meet the varying wants and circumstances of trade, and it seems therefore desirable that there should be some power of making corresponding alterations in the classification adopted for the public." *

The whole system is so complex and bound up in so much intricacy that one cannot, in dealing with the several points, observe that consecutive order which otherwise might be adopted. It is now necessary to return to the question of rates, for in connection with these there are numerous inconsistencies. Take, for instance, the following extracts from a table of rates for sugar submitted by Mr. Clarke to, and published in the Report of, the Select Committee already alluded to :—

Miles.	From	To	Rate.
			s. *d.*
97	Liverpool	Birmingham	16 8 per ton.
77	,,	Leeds	17 6 ,, ,,
248	Greenock	Manchester	15 0 ,, ,,
219	,,	Leeds	25 0 ,, ,,

If it paid, or pays now, to carry this traffic from Liverpool to Birmingham for sixteen and eightpence per ton, surely it might be carried to Leeds, distant twenty miles less, without handicapping that town to the extent of tenpence per ton. As will be seen

* Report, p. xxxvii.

at a glance, this same town of Leeds, in trading with Greenock, was placed at a still greater disadvantage as compared with Manchester, the distance to the latter being twenty-nine miles more than to Leeds, and the rate tenpence per ton less. The result of such a practice can only be that, in the case of the higher rates, an undue profit is realized, or that with regard to the lower rates, the trade is carried at a loss. It may be said that the railway companies ought to be left at perfect liberty to act at their pleasure in this matter. But the question arises, How, in the case cited, is the sugar merchant at Leeds situated? He is simply in the hands of the companies, having no alternative but to accept their terms and make the best of them. Where there are two routes to a given point some protection to the public might be expected. But this seeming advantage is, for the most part, rendered null and void by the compacts entered into between the various companies to charge equal rates. For these and a host of similar inconsistencies, which might readily be cited, the companies would, if appealed to, be no doubt prepared to give what they would term a satisfactory reason.

Perhaps, for example, it might be stated that, in the case of the lower rate, the quantity of the traffic and a variety of other circumstances fully justified the difference. It is considered fair that reduced rates should be given where the traffic is large; but this is not invariably the case by any means. It is not an unalterable principle—it is merely an occasional

expedient, to be adopted or withheld at the will of the company. Again, it might be urged, "Would it not be good policy to make the rates a little more equal, with a view to an equalization of the traffic? Give some encouragement to your small customers, so as to make them larger ones." If a trader applied to some of our principal manufacturing establishments to be supplied with a large number of articles on special terms, he would be told, "Our prices are the same whether you order one article or a thousand. We serve all alike, great and small." There is much to be said in favour of such a principle.

Or take another view. A trader finds that the rates he has to pay to a certain district press heavily upon him, and he submits the case to the railway companies. In many cases they set about the production of a return, showing the amount of traffic forwarded to the points under notice, and then plead the smallness of the trade as their reason for not making any concession. Is it not remarkable that such a mistake should be made? They seem to look for a good effect without a cause which can possibly produce it. Railway companies want a large trade to enable them to charge moderate rates, whereas it should be for them to reduce their rates to a reasonable point to produce a large trade.

The companies can be arbitrary in their dealings with the public. The following extract from a letter read at a meeting held in the Eastern Counties, in December, 1873, to protest against high rates, etc., will give an illustration of the state of things in that

district:—"The company requires us to sign an agreement not to dispute their rates, or otherwise they intimate that we shall be put to all manner of inconveniencies, and have our special rates cancelled." It would be very unfair to cite this as indicating anything like a general practice; but, though a few years have elapsed since the letter referred to was written, there is evidence that there is still alive in some quarters a spirit of a very similar sort, and which soon displays itself in response to a little opposition. Railway companies seem to think it a wholesome thing that those who protest should be punished.

There are other points of importance in connection with the rate department, which should not be passed by unnoticed. The mode of charging small parcels takes, perhaps, the first rank. In the special Acts of Parliament there is no general uniformity as to the regulations to be adopted. The following will serve, however, to give an idea of the enormous power possessed by the companies:—

"With respect to small packages not exceeding five hundred pounds in weight . . . the company may demand and take any tolls not exceeding the following:—

"For any parcel not exceeding seven pounds in weight, fourpence.

"For any parcel exceeding seven pounds and not exceeding fourteen pounds in weight, sixpence.

"For any parcel exceeding fourteen pounds but not exceeding twenty-eight pounds in weight, ninepence.

"For any parcel exceeding twenty-eight pounds but not exceeding fifty-six pounds in weight, one shilling.

"And for any parcel exceeding fifty-six pounds and not exceeding five hundred pounds in weight, the company may demand any sum they think fit."

Such are the powers conferred on the London and North Western Company, with regard to one of their branch lines thirty miles long. Here, there are given fixed charges for parcels varying from 1 lb. to 56 lbs. In some of the special Acts, however, the power given is absolute, to charge *all* parcels not exceeding 500 lbs. "any sum they think fit."

So much with regard to the law. It will be well now to inquire what has hitherto been and now is the practice. For many years, and until nearly the end of the year 1877, the plan generally in use by all the companies was to have a fixed charge to each station for parcels not exceeding one hundredweight. Taking again as an illustration the case of the rates we have quoted for 200 miles, the rates were for these "smalls" as follows:—

	s.	*d.*
Under 28 lbs.	2	3
Above 28 lbs. and not exceeding 56 lbs. . .	2	6
„ 56 lbs. „ „ 112 lbs. . .	2	9

The idea is not to be received that these were the rates invariably for a distance of 200 miles; but the specimen given is a fair one. Of course the rates were proportionate for shorter or longer distances. It was generally considered, at least by railway freighters, that this plan had worked satisfactorily, and no complaint was, as far as has been generally known, ever made with regard to it. On the 1st of

October, however, all the railway companies in England and Wales—it is well to notice the absence of Ireland and Scotland from the compact—rather suddenly commenced the use of a new scale of charges for conveyance by goods train of all packages of 500 lbs. or under. Previously, with the exception of parcels not exceeding 112 lbs., as noted above, all parcels above that weight had been charged at a fixed rate per ton; and the trading interest was much surprised to find that not only did this new arrangement involve a serious increase in cost, but the uncertainty which seems inseparable from matters of railway charges was found to be rendered more uncertain. To attempt to give the details of the new scheme would occupy a considerable space, but some idea may be conveyed of its construction by the following:—Commencing with parcels not exceeding 1 qr., rates are fixed for every additional 14 lbs. up to 500 lbs.—*i.e.*, 4 cwt. 1 qr. 24 lbs. Starting with the lowest rate per ton, the new list gives a different rate per package on an ascending scale, according to the weight of the parcel and based upon the tonnage rate. No better plan can be adopted than to give an extract from the list itself:—

Weight not exceeding	Above 23*s.* 4*d.* and not exceeding 25*s.* per ton.	Above 25*s.* and not exceeding 26*s.* 8*d.*	Above 26*s.* 8*d.* and not exceeding 28*s.* 4*d.*	Above 28*s.* 4*d.* and not exceeding 30*s.*
cwt. qr. lbs.	*s. d.*	*s. d.*	*s. d.*	*s. d.*
2 0 14	3 0	3 3	3 5	3 7
2 1 0	3 2	3 5	3 7	3 9
2 1 14	3 4	3 7	3 9	3 11
2 2 0	3 6	3 9	4 0	4 2

According to the old arrangement, a parcel weighing 2 cwt. 1 qr. would, at a rate of twenty-five shillings per ton, be charged two and tenpence, but the new scale fixes the charge at three and twopence. A package weighing 2 cwt. 2 qrs., for which the rate per ton was twenty-seven and sixpence, used to be charged three and fivepence, but now the demand is four shillings. There is in some cases a still larger per-centage of increase. For very small parcels, say, below 28 lbs., a considerable reduction has been made, and this evidently with the intention of weakening the position of the small parcels companies; but what is taken off at the bottom is more than compensated for by what is added at the top. The companies do not acknowledge that they have had their competitors, the parcels delivery companies, in view, but let judgment be arrived at from the fact that the charges for small packages have been lessened, whilst the rates for the consignments of parcels companies sent by railway have been considerably increased. As a public question, the great uncertainty about these charges is only second to the increase in cost which has been effected. The annoyance and trouble which the system occasions cannot be estimated. There is no rule for the guidance of the public, and without this new list, which, as has been shown, is of an elaborate nature, and which is practically "private and not for publication," the trader is simply at the mercy of the companies. No step could have been taken by the railway companies more in antagonism to the principle already referred to—*that the public*

should know what they are charged, and why they are charged—than the promulgation of this new scheme. The charges are made, and the only thing the trader can do is to pay. Then, there is considerable doubt, even on the part of the railway officials, as to the correct charge to be made, so complete is the complication. What is the plan adopted in order to arrive at the correct amount? It is necessary, first, to ascertain from the Clearing-house classification in what division a particular kind of goods is placed, and here there is sometimes room for difference of opinion; secondly, the rate-book has to be referred to for the tonnage rate; finally, the new scale is called into requisition, according to which the charge for a specified consignment is liable to variation. Then there is, among others, the following regulation:—

"When two or more packages of different classes are sent by one consignor to one consignee, their weights are added together, and the charge is to be at the highest class in which any of them is placed; but, whatever the aggregate weight the consignments may be, no less charge is to be made than the maximum weight as per scale."

Look at the vast interests involved in connection with all the traffic now charged under this rule. Imagine, for example, how many thousands of packages under 500 lbs. are daily sent out by London, Manchester, Leeds, Birmingham, and Sheffield houses. It almost seems that the companies had determined to give a forcible illustration of their parliamentery powers as to parcels under 500 lbs.,

which, as we have said, allows them to charge "any sum they think fit." The matter has been again and again represented to the companies by the Chambers of Commerce and others, but the railway managers are immovable. Exception has been made in favour of Burton-upon-Trent, the reason of which it is difficult to see. It may be that the brewers have a powerful influence over the companies, such as others cannot wield so effectively.

Returned empty packages are charged according to a mileage scale, the rates to and from London being higher than in other cases. The charges made for the carriage of these articles have been very greatly increased during the past few years. Many years ago they were carried free; subsequently a very small charge, about half the present rate, was demanded.

The scale to and from London is now as follows :—

	s.	*d.*	
Not exceeding 25 miles . . .	0	6	per cwt.
26 to 50 „ . . .	0	8	„
51 „ 100 „	1	0	„

No less charge than 6*d.*

In other cases the scale is :—

Not exceeding 25 miles . . .	4*d.*	per cwt.
26 to 50 „ . . .	6*d.*	„
51 „ 100 „	9*d.*	„

No less charge than 4*d.*

Carriage must always be prepaid. The figures given are according to the regulations of the Railway Clearing-house, to which, however, there are many

exceptions. For instance, special arrangements are made for the conveyance of empty casks to Burton and to many other places where there are large breweries, etc. The classification contains a list of these exceptions, together with rules as to the mode of dealing with them.

Attention has been called already to the fact that in some instances the rates are varied, according to whether goods are conveyed at "owner's risk" or "company's risk." As this is in many respects an important consideration, it will not be amiss to offer a brief explanation. In the first place, there is no provision in any Acts of Parliament for such an arrangement. The plan has been adopted in order to give traders reduced rates in certain cases, whilst the companies are relieved of some responsibility. The company's risk rate is charged unless a notification be given by the sender to the contrary. In the majority of instances there is no option, there being only one rate. The general rule is to charge one class lower when the owner takes the risk.

Again, as regards some articles very liable to damage, the companies decline to carry them except at "owner's risk." When there are two classes and the sender wishes to avail himself of the lower rate he is required to sign a "risk note," which is an undertaking to relieve the company of all responsibility as regards breakage or delay. The sender has "to undertake, in consideration of such reduced rate, to free and relieve the railway company or companies over whose lines the goods pass from all claims or

liabilities arising from detention, except upon proof that such damage or detention arose from wilful misconduct on the part of the company's servants."

When carried according to this arrangement, certain articles, such as cast iron, which may be broken in transit, are returned free to the sender, as are also the new pieces sent to replace the same. It will be readily understood that the opinions of the companies and those of the public are sometimes considerably at variance as to the extent of responsibility thus undertaken. Not long ago more than one company endeavoured to make use of these "risk notes" to exonerate themselves from responsibility in cases of loss, but the position thus taken seems to have been given up as quite untenable. The companies have, of course, their side of the question, but they are able to take care of themselves. For the protection of the public there is the principle contained in Mr. Cardwell's Act of 1854, by which special contracts entered into by consignors, by which the companies' liabilities would be evaded, are declared void.

Another part of the freight question—that relating to terminal charges—is one which affects the interests of traders to a considerable extent. It is a matter, moreover, involved in great doubt and difficulty; indeed, it is scarcely reducible to coherence. We can only hope, therefore, to give a very general idea as to the effect and meaning of "terminals." The charges in question are made for the services which the companies render in the forwarding and

receiving of goods in addition to the cost of carriage along the line. Such services include all the duties generally performed at the railway stations. The provisions of the special Acts of the companies empower them to demand "a reasonable sum for loading and unloading, delivery and collection, etc., where such services or any of them are, or is, performed by the company."

The Royal Commission on Railways, 1867,* thus described terminals:—"It is not easy to define the intention of Parliament in allowing a reasonable sum for loading and unloading, and terminal expenses. . . . As there is great diversity in the wording of the clauses relating to terminals in the special Acts, it is extremely desirable that some general rule should be laid down by Parliament. Perhaps the best way of looking at terminals is to assume the simplest case of a trader who possesses a branch line of railway into his works, which communicates with the railway at one of its ordinary stations, and who, having obtained a waggon from the railway company, and loaded it, places it at the junction of his branch with the main line, and presents it for transmission by the railway company to his correspondents, who receive it from the company in like manner. Such a service would not be entitled to terminal expenses."

On the part of the railway companies it is alleged that "the trader has no concern or interest in the terminal question at all. The question of terminals,

* See Report, p. lxvii.

properly, is a question between companies," * because they state the gross rates charged to the public are not equal to their parliamentary powers. This is no doubt a very ingenious, but, nevertheless, a somewhat one-sided statement. Let an endeavour be made to give material wherewith to form a judgment.

The following extract from the evidence given by Mr. Dawson, secretary of the Railway Clearing-house, and therefore one of the highest authorities on the subject, will throw some light on the matter. Having been asked to describe the mode of distributing the charge for a ton of goods from Aberdeen to London, he said, "We should get a return from Aberdeen, showing the date, weight, and charges, and a corresponding return from the London station. We should credit the Aberdeen company with four shillings if the goods were carted, and the London company with eight and sixpence per ton; the residue we should divide according to the mileage over which the goods were carried." † The allowances mentioned are made in accordance with the regulations of the Railway Clearing-house, by which four shillings per ton is fixed as the amount for terminal services on general merchandise in the country, and eight and sixpence in London, applicable in the case of goods either forwarded or received. These amounts refer to traffic such as mentioned in a previous part of this chapter, described as Division 3, Classes 1 to 5.

* Evidence of Mr. Scott before Parliamentary Committee, 187 Report, p. 530.

† Report of Committee, p. 546.

For "mineral" and "station to station" goods, the terminals are generally eighteenpence and ninepence per ton respectively. There are, of course, numerous exceptions arising from a large variety of circumstances. As regards local rates, the amounts named for terminals cannot be taken as applicable. Whilst, however, the Clearing-house terminals above quoted have been fixed mainly for the purpose of dividing gross through-rates between the railway companies concerned, it is fair to take them as an approximate representation of services rendered. It is quite reasonable to suppose that they were fixed as having some reference to the value of the services performed. Under such circumstances, the public are interested to a considerable extent, and it is of eminent importance that the position should be fairly stated. When the subject is raised with the companies, there is generally an endeavour to get it "shunted," by some ingenious method, into one of the numerous sidings to which have been consigned so many other questions of equal importance. The terminal question affects the public generally, principally as regards cartage and delivery. It has been already explained that the rates in Classes 1 to 5 include the performance of these services within a certain radius. Where there is only one railway in a town the extent of free delivery is generally a mile from the station.

In London, and in provincial towns, where there are competing lines, the limits of free delivery are fixed upon by the companies in concert. It is generally understood, with regard to goods in Classes 1 to 5,

that the service of cartage at the sending station is represented in the rates by an amount of eighteenpence per ton, and the like amount applies to delivery at the receiving station. It is a notable fact that the companies, in many cases, when making separate charges for the cartage or delivery of goods which have been conveyed at "station to station" rates, fix upon rates higher than the eighteenpence per ton. In London the rate per ton for cartage varies from three to five shillings per ton, according to circumstances. (See subsequent chapter as to powers of Railway Commissioners with regard to terminal charges.)

At the commencement of this chapter it has been shown, we venture to think, conclusively, that for any practical purpose the classification of articles in the special Acts of Parliament is absolutely useless. It may safely be said that the maximum rates authorized to be taken for the conveyance of the articles named are (1) altogether inapplicable to existing circumstances, (2) but more especially are valueless as a protection to the public.

1. The provisions in the special Acts are antiquated, and were constructed, for the most part, in the very infancy of railways, when the idea prevailed that the companies would be employed principally to convey goods from station to station. There was no idea that railway companies would develop into what they have now become—general carriers. Mr. S. Morley, M.P., in his evidence on behalf of the Associated Chambers of Commerce received by the

Parliamentary Committee of 1873, said, "The legislature, in sanctioning the original lines, gave the companies power to take the lands and the houses of the public to enable them to make the lines; but they gave the public the right to use the lines so to be made under certain conditions, and they imposed restrictions upon the companies as to rates of freight and fares. The right of the public to use the lines was found to be impracticable and useless, and has never been of any practical benefit to the public; and the maximum rates and fares imposed were always so high, that the railway companies could charge the most exorbitant fares and still be within the limits imposed." The impracticability of the maximum rates is proved by the fact that the companies find it to answer the purpose very much better not to charge to their full extent.

2. The companies claim perfect discretion in respect to rates so long as the maximum rates are not exceeded, and they are thus in possession of a considerable margin of power in this respect. The result is that, as regards any protection to the public, the maximum rates are scarcely worth the ink used in printing them. Upon this subject the Select Committee of 1873, in page lxxviii. of their Report, made the following forcible remarks: —"They [the companies] are practically under no restrictions except that of their own interest, which may not be the same as that of the public; they claim and exercise the right to vary their charges to any extent they please within the parliamentary

maximum; to favour one place, or one description of trade, at the expense of another; to charge high rates for short distances, and low rates for long distances; or to charge two different rates for the same service, if they think it to their interest to do so. And not only do they claim to exercise all these powers, but they refuse to tell the public how they exercise them." The legislation which resulted from this Report has affected the question in but a very small degree. It will thus be seen how helpless is the public. The chief value of the maximum rates lies in the fact that the railway companies can and do fortify their position by appealing to their parliamentary powers when dealing with complaints made of excessive rates, or when the question is raised of the right to charge for terminal services where such services are performed by the public.

In dealing thus with this important matter, it is felt that only just the fringe of the question has been touched. It may be hoped, however, that what has been written will have succeeded in placing before the reader a tolerably clear idea of the rate system generally. It has been shown that the whole scheme is surcharged with complication; that there is a constant uncertainty as to charges, owing to this complication, and the frequent changes—often of a serious character—made without notice. It has also been shown how powerful the companies are, and how powerless their customers are. It may well be contended that a more popular rate system should be established, and this no less on behalf of the companies, than in the interests of the public.

CHAPTER XVII.

RAILWAYS AND THE PUBLIC.

THE business relations of the public with the railway companies are not always of the smoothest description. Difficulties and disputes frequently arise which require careful treatment. From sundry causes the facilities afforded to traders are occasionally inadequate to meet their requirements. Delays are of frequent occurrence, and these give rise to much annoyance. Whilst in some instances the cause for complaint in these directions might have been avoided, there is sometimes on the part of the public a tendency to expect a little too much. No thought seems to be given to the fact that there are other persons whose business is quite as urgent as that of the complainant for the time being. The number of transactions conducted every day by our railway companies is so vast, and the whole of the machinery for working the traffic is necessarily so complex, that the wonder is how with such general promptitude the carrying trade of the country is performed.

The scene at one of the large goods stations, such

as the London and North Western, Broad Street, London, or the Midland, St. Pancras, which might be witnessed any day of the week, when all the goods which have been collected from the metropolis during the day are being loaded into the waggons for despatch to their destination, is simply indescribable. With regard to delay, it should be borne in mind—and this applies especially to small country stations—that small lots of goods cannot in every instance be sent in a waggon direct to their destination; they have to be forwarded to some intermediate station for transhipment. Indeed, during long journeys, such consignments are changed into two, three, or more different trucks. It must also be remembered that, as compared with passenger trains, goods trains travel very slowly, and in many cases there is only one train per day in each direction. It is well to bear all this in mind in connection with transactions with railway companies. It is in the power of the public to contribute somewhat to expeditious transit. Indefinite and incomplete forwarding instructions are frequently given by senders, and sufficient care is not paid to labels. Herein is a fruitful source of wrong sending and delays. "Consignments" should be written distinctly, and made out clearly and fully. The name of the railway on which the receiving station is situated should be given. If this is not known, then the name of the county should be added.

The necessity for the exercise of much care in these respects will be apparent when it is stated that there are many stations of the same name. For instance,

there are six stations named Sutton, four named Thorpe, three named Bromley, two named Alton, two named Alresford, two named Bedford, three named Brampton, three named Brandon, etc., etc. Then, it is not difficult in numerous cases to confound the name of one station with that of some other. Goods have been sent to Farnham, Surrey, instead of to Fareham, Hants, and it is possible to mistake Reddish, on the London and North Western Railway, for Redditch, on the Midland. On the other hand, the public are subjected to much unnecessary trouble in many instances, arising frequently from the want of a sufficient and efficient staff of officials.

It is not to be wondered at that in connection with the millions of consignments of merchandise sent along our railways there should continually be claims made for loss, delay, and detention. The fact that in the year 1876 no less a sum than £323,949 was paid by the railway companies of the United Kingdom, as compensation for damage and loss of goods, will impress the mind of the reader with some idea as to the extent of the transactions in this respect; but the figures quoted convey but a very inadequate estimate indeed as to the magnitude of the question, as regards the amount of trouble both to the public and the companies. The expenditure of labour in letter writing, as only one item, is immense; indeed, scarcely to be measured.

We have spoken of claims which have been actually paid by the companies. Many traders could testify to having lost much time and money in connection

with claims unsettled. The prompt and satisfactory settlement of claims is a great bone of contention between the public and the companies. Before proceeding further, however, we cannot perhaps do better than refer to the provisions of the law with regard to the responsibility of the latter. The following is an extract from 17 & 18 Vict. c. 31, better known as "Cardwell's Act, 1854":—

"CLAUSE VII. Every company shall be liable for the loss of or for any injury done to any horses, cattle, or other animals, or to any articles, goods, or things, in the receiving, forwarding, or delivering thereof, occasioned by the neglect or default of such company or its servants, notwithstanding any notice, condition, or declaration made and given by such company contrary thereto, or in any wise limiting such liability; every such notice, condition, or declaration being hereby declared to be null and void: Provided always, that nothing herein contained shall be construed to prevent the said companies from making such conditions with respect to the receiving, forwarding, and delivering of any of the said animals, articles, goods, or things, as shall be adjudged by the court or judge before whom any question relating thereto shall be tried to be just and reasonable: Provided always, that no greater damages shall be recovered for the loss of or for any injury done to any of such animals, beyond the sums hereinafter mentioned; that is to say, for any horse, fifty pounds; for any neat cattle, per head, fifteen pounds; for any sheep or pigs, per head, two pounds; unless the person sending or delivering the same to such company shall, at the time of such delivery, have declared them to be respectively of higher value than as above mentioned; in which case it shall be lawful for such company to demand and receive by way of compensation for the increased risk and care thereby occasioned a reasonable percentage upon the excess of the value so declared above the respective sums so limited as aforesaid, and which shall be paid in addition to the ordinary rate of charge; and such percentage or increased rate of charge shall be notified in the manner prescribed in the statute 11 Geo. 4 & 1 Will. 4, c. 68, and shall be binding upon such company in the manner therein mentioned: Provided also, that the proof of the value of such animals, articles, goods, and things, and the amount of the injury

done thereto, shall in all cases lie upon the person claiming compensation for such loss or injury: Provided also, that no special contract between such company and any other parties, respecting the receiving, forwarding, or delivering of any animals, articles, goods, or things as aforesaid shall be binding upon or affect any such party, unless the same be signed by him or by the person delivering such animals, articles, goods, or things respectively for carriage: Provided also, that nothing herein contained shall alter or affect the rights, privileges, or liabilities of any such company under the said Act of 11 Geo. 4 & 1 Will. 4, c. 68, with respect to articles of the descriptions mentioned in the said Act."

It forms no part of the object in view to enter into any discussion in the realm of railway law, much less is it the intention, even were there the capacity, to give legal advice upon either this or any other of the subjects with which attempts will be made to deal. The present desire is to give such information as it may be thought will be useful, and this will be founded on facts, and not theories. It is clearly laid down by the law that railway companies shall be responsible for the safety of anything and everything committed to their care, subject, of course, to certain conditions and limitations, respecting which the extract quoted from the Act of 1854, will give a general and fair idea. It is only natural that in connection with this important question of claims the companies should select the most effective means of self-defence, and it is astonishing how various and numerous are the expedients adopted. One of the most prominent is the plan of giving notice to the public that under such and such conditions the companies disclaim all liability. As almost everybody knows, a prominent feature of a railway bill of charges is the printed list of notices, of very

considerable length, it contains, but which few people have ever read, stating that under a great variety of circumstances the companies are exempted from liability in cases of loss, damage, or delay, etc. No universal rule can be made available in every case, as circumstances are as various as the instances are numerous. In practice, however, it may be stated that the companies, as a rule, deny all responsibility for consequential damage,—a position neither just nor tenable in every case. It is not asserted that the practice is anything like a general one, and in some instances it may be exercised through ignorance, but it is a fact that improper use is occasionally made of the arrangement already referred to as to goods carried at "owner's risk."

Attempts are made to utilize the making of this contract between the sender and the company as a complete bar to the obtaining of recompense for damage or delay, no matter what its extent. Again, it is not everybody, who is a consignee of goods, who knows anything of "company's risk" and "owner's risk," and if to be released from a claim it be said, "As your goods were carried at 'owner's risk' we cannot entertain your claim," even when the "company's risk" rate has been charged, the claimant is helpless. It is no part of the general policy of the railway *management* to adopt this course, but it is well to be aware of the possibility of its adoption in individual cases.

On the other hand, it is only fair to say that there are attempts to impose upon the companies. It would

seem that some claimants have an idea that railway companies are a fair field for trading. Claims the most groundless are sometimes made, and others are submitted with very "fancy" figures. Let there be equity on both sides.

Too much care cannot be used in giving signatures for the receipt of goods, as the companies use these to relieve themselves of responsibility, and no subsequent resource is, as a rule, available. As a precaution, the words "not examined" should be appended to the signature when packages containing articles liable to injury are received which cannot at once be thoroughly inspected. When goods are damaged they should be signed for with a remark to that effect. The sender should also at once be communicated with. Notwithstanding any damage that may have occurred, the companies may demand payment of carriage. The companies are also responsible for unreasonable detention, and the losses which may arise therefrom. Here again each case must depend upon its own merits. In some instances goods may be so damaged, or by delay in transit have become so useless, that it is necessary to decline to accept delivery, a course to be adopted with great discretion. Finally, whenever a claim is necessary it should be submitted promptly, made out clearly, and with all particulars. The number of claims made upon the companies is so great that we cannot be surprised that settlements are sometimes delayed. Perhaps the best mode of hastening payment is to be free in the use of reminders strengthened in their tone on an ascend-

ing scale. Fighting a railway company should be the very last resort; a child should not war with a giant.

It is to be borne in mind also that railway companies make claims on the public for other than carriage; especially is this the case as regards moving merchandise from the stations. Delay means a charge of three shillings per day for demurrage of waggons, one shilling per day for sheets, heavy charges for warehouse rent, etc., etc. Promptitude is thus essential, so as to avoid these demands.

The preceding remarks refer principally to goods traffic. With regard to passengers the following notice, similar to many others, is attached to the time table of the Great Western Railway:—

TRAIN BILLS.—The published train bills of this company are only intended to fix the time at which passengers may be certain to obtain their tickets for any journey from the various stations, it being understood that the trains shall not start from them *before* the appointed time; but the directors give notice that the company do not undertake that the trains shall start or arrive at the time specified in the bills, nor will they be accountable for any loss, inconvenience, or injury which may arise from delays or detention, unless upon proof that such loss, inconvenience, injury, delay, or detention arose in consequence of the wilful misconduct of the company's servants.

This notice notwithstanding, there have been cases where claims have been made and recovered in courts of law for loss arising from delay in the arrival of trains, but the law does not render the company's liability unlimited. A remarkable case occurred not long since. A Mr. Le Blanche sued the London and

North Western Company for the cost of a special train to Scarborough, which he had ordered in consequence of his being brought from Liverpool to Leeds too late for the ordinary train from Leeds to Scarborough. A judgment in the county court was given in favour of the applicant. The railway company appealed to the superior court, and the points raised were argued by able counsel, when the decision of the county court judge was confirmed. The company was determined to put the case to the utmost possible test, and on appealing to the Supreme Court of Judicature the judgment was reversed, the decision being to the effect that whilst there was some evidence of wilful delay the measure of damage was wrong.

It will be interesting to give a brief consideration to the question of the interests of the public as compared with the interests of the companies. It was asserted by railway managers, in evidence given before the Select Committee of 1872,* that the interests of the companies and the public are identical. No manager has done more than Mr. Allport, if so much, with a view to make them so, but the identity is certainly not complete. The managers are, and must be, railway men first, and public men after. Reference may again be made to the Report of the Select Committee (1872), page lxxxi.: "But there are limits to this coincidence of interest. It is, as pointed out by the Committee of 1839–40, page 7, to the interest of the companies to make as large a profit with as little an outlay as possible; it is, therefore, to their interest to carry one

* Mr. James Allport's opinion. See Minutes of Evidence, p. 45.

passenger or one ton of goods for a shilling each rather than to carry two passengers or two tons of goods for sixpence each, whilst the converse is clearly to the interest of the public. Again, it is to the interest of the companies to shut rival routes by water; and if the witnesses are to be believed, they have in cases of canals sometimes succeeded in doing so. Again, it is or may be the interest of each company not to send passengers or goods by the shortest or most convenient route, but by the route which gives the company the greatest amount of profit . . . and to time passenger trains so as to make travelling on other lines difficult or impracticable."

The companies thus have it entirely in their power to decide what in their opinion will be best for the public interest, and the views of the public on this point are often at variance with the views of the railway managers. Coincidence of interest can only be secured by coincident action; whereas the public have no voice in the matter, and are not always permitted to be even judges as to what will be best for their welfare. What is needed by the public is that there shall be a guarantee that their interests shall have the best consideration. There are, be it remarked, many members of our railway executive who act with a liberal and broad public spirit, but the policy is not universal, and there is no guarantee that it will continue to develop. What do the Select Committee of 1872 say upon this subject?

"In the first place, it must not be too hastily assumed that self-interest will play the same part

in these large undertakings which it plays in ordinary trading concerns. There is an able and powerful bureaucracy of directors, secretaries, and agents. The real managers are far removed from the influence of the shareholders, and the latter are to a great extent a fluctuating, ignorant, and helpless body. The history of railway enterprise shows how frequently their interests have been sacrificed to the policy, the speculations, or the passions of the real managers. On the other hand, the directors and principal officers of these great undertakings are often men of high standing, who feel that their position is something different from that of mere managers of a trading concern, and become in a certain sense amenable to public opinion, and especially to its expression in Parliament."*

In succeeding chapters we shall attempt to deal with the means which have been adopted for the protection of the public, and point out to what extent they are effectual.

* Report, p. xxix.

CHAPTER XVIII.

COMPETITION—AMALGAMATION.

In the Report of the Joint Committee already referred to, the question of competition is very fully dealt with. It is pointed out that there was at the commencement a prominent idea in the mind of the public that competition, which is so powerful for good as regards most commercial affairs, would have the same effect upon railways, since there was an endeavour on all hands to develop its influence. Many of the railway companies were imbued with the same spirit, and some were very reckless in the means adopted for carrying it out. Two illustrations of this policy will suffice.

In the summer of 1857 the London and North Western and Great Northern Railways contended with each other for the passenger traffic from London to Manchester. First-class and second-class passengers were conveyed at fares, there and back, of seven and sixpence and five shillings respectively, the distance being 400 miles, and four clear days were allowed in Manchester. As might have been expected,

trains were well filled, and but for the fact that the other traffic was much interfered with, the fares would, it is said, have been remunerative. As it was, it is said that the shareholders lost 1 per cent. dividend.

Another memorable contest was carried on about the year 1853, between the Caledonian and the Edinburgh and Glasgow Companies. The latter suddenly reduced the fares between Edinburgh and Glasgow for the three classes from eight shillings, six shillings, and four shillings, to one shilling, ninepence, and sixpence. The contest was continued for a year and a half, and cost the Edinburgh and Glasgow Company nearly 1½ per cent. in their dividends.*

There were other contests of a similar sort, more or less disastrous in their results. The violence of these competitions were such as in many cases to involve financial difficulties, and at length the companies came to the conclusion that it would not answer the purpose to perpetuate such a spirit of rivalry. Still the general object of railway legislation was to encourage competition for the protection of the public. At length, however, it was in some degree recognized by the public, both in and out of Parliament, that competition could not be depended upon as a protector of trade interests. Such was the view of the Committee of 1872, who came to the following conclusion:—

"That Committees and Commissions, carefully

* Paper by W. Galt, read before Society of Arts, 1873.

chosen, have for the last thirty years clung to one form of competition after another; that it has, nevertheless, become more and more evident that competition must fail to do for railways what it does for ordinary trade; and that no means have yet been devised by which competition can be permanently maintained." *.

The companies were prepared with an expedient which would have the effect which they desired to produce. The plan adopted was to enter into partnership with other companies. It will be interesting to note to what extent amalgamations have been effected, and then to remark as to the result they have produced.

The following extracts from the returns published in the Report of the Joint Committee will give an idea as to the progress of absorption. The origin of the present Great Eastern system was the Eastern Counties line, 139 miles in length. In the year 1844 there were added by amalgamation fifty-six miles; in 1847 there was a union effected with some sixteen lines. In 1862 a complete amalgamation of all the principal lines in the Eastern Counties was effected, and thus was produced the present Great Eastern system, with other additions made in 1863, 1865, 1866, etc. This company has in all taken into its management twenty-seven separate undertakings. The Great Northern, which was incorporated in 1846, commenced in 1847 by adding two lines. The same process of amalgamation continued, and

* Report, p. xviii.

at the end of the year 1871 this system was made up of nineteen once distinct concerns. The Great Western, originally 118 miles in extent, commenced amalgamation in 1844, and from 1846 to 1871 added 973 miles. In 1876 the Bristol and Exeter line, 195 miles, was added, and now (1878) it is recorded that a scheme has been approved for the acquisition of the South Devon Railway. The London and North Western started in 1833 with the London and Birmingham line of 160 miles. Lines were added up to 1846, when there was a territory of 329 miles. Between the year 1846 and 1871 inclusive, this company added by amalgamation, purchase, or lease, more than fifty lines, representing 971 miles. In the year 1871 this concern comprised no less than sixty-one lines, each started as an independent company. Up to 1871 the London and South Western had taken into partnership twenty-two lines; the London, Brighton, and South Coast, twenty-two; the Manchester, Sheffield, and Lincolnshire was the product of eleven railways; and the Midland seventeen lines. The other large systems have all arrived at their present position by the same process, in order to effect which no less than 258 bills, containing provisions for amalgamation, were introduced between the years 1860 and 1871 inclusive.

The amalgamations which have thus, from time to time, been effected have doubtless resulted in considerable benefit to the public. The advantages derived from the nearer approach to centralization of control must be manifest, for it is clear that, had all the

small concerns remained under separate management, the result must have been something approaching to chaos, and the expense of supporting so many distinct undertakings such as to render the rates far in excess of what they are now. The principle of amalgamation of railways may be said to be a sound one, under certain circumstances, and subject to proper regulation. Amalgamation must prove of benefit to the shareholders, for as amalgamation increases, working expenditure must, or should, decrease, and this is an important consideration in the interests of the public, no less than of the railway proprietary.

In many instances there are now two railways to a given place, whereas one could carry all the traffic without any appreciable addition to the rolling stock, or corresponding increase in the working expenses. Suppose the Midland and London and North Western, now nominally competing concerns, were to amalgamate, the saving which would be effected by the joint use of stations, rolling stock, officials, etc., would be immense. The question of running powers over the lines of the different companies has often been a question for much contention, and this co-operation is carried out to a considerable extent. But it is regulated, not so much by public interest, as by the separate interests of the companies concerned. Sometimes the railway companies fail to agree upon this matter, and occasionally set about the making of some new line in consequence.

It is, for example, considered by those who are eminently capable of forming a judgment that the

making of the new line by the Midland Company from Settle to Carlisle was an unnecessary expenditure. There were already two lines to Scotland, which had been found sufficient, and it was considered by many that they would have met every necessity for fifty years hence; but, inasmuch as an agreement could not be come to as to running powers, the Midland induced Parliament to authorize the making of a third line. Here was an enormous outlay with very little advantage resulting therefrom; at any rate, supposing that it be acknowledged that benefits have been derived, they are not, and perhaps never will be, proportionate with the expenditure. Other instances analagous in character might be quoted. As regards the good to be derived from this so-called competition, there is an absolute minimum. It has been seen to what extent the process toward complete amalgamation has been carried out. There are, it is true, many railways which are nominally in opposition, but, as a matter of fact, the whole system, as regards the public, is, in some respects, worked as one concern. It is nevertheless urged in some quarters, notably by some of the railway executive, that there are still considerable advantages derived from competition.

Before proceeding further to review the subject of competition by railway, it may be briefly noticed that the companies have, to some extent, to compete with the carriage of goods and merchandise by water. In the case of the sea the competitors are unlimited in number, and thus combination is impossible. Thus it is that the public derive great advantages

from effective competition with regard to towns on our coasts. Between London and such places as Ipswich, Yarmouth, Lynn, Hull, Newcastle, Leith, and Aberdeen there is a large traffic both in passengers and merchandise. Steamers between Glasgow and Liverpool also compete with the railways. The list is not, of course, complete, but it will be seen that the trader, if he is not well served by the railway company, is not bound to accept the facilities offered. But this affects the general question in but a very small degree, and wherever it is practicable the railway companies become owners of the steamers. Then, as to canal navigation, there is some competition, but it is so limited as to be of scarcely any benefit—indeed, so small that it can scarcely be measured. Here, too, the railway companies have introduced the principle of amalgamation, the policy being to buy canals whenever opportunity offers. The extent of this tendency to monopolize may be estimated from the fact that, according to a return presented to the Joint Committee of 1872, the railway companies of England and Wales had under their control 1448 miles of canals or navigations.

Now, as to competition between railway companies. It cannot, at any rate, be denied that railway companies go to as much expense in carrying out the so-called competitive policy as if the public derived the same amount of benefit therefrom as they do from that powerful regulator in most other commercial affairs. They continue to preserve all the vast machinery of their separate systems, with separate

armies of officials, including a large number of canvassers for traffic. It is true that, as regards facilities, there is some competition. Trains may be more expeditious by one route than by another, and there are many different ways by which one company can afford better accommodation than its competitor can; but as regards rates and fares, it is very questionable whether any good is derived by the public by the existence of more than one route. The fact really is that, for the purpose of fixing charges, all the principal railway companies have effected an amalgamation. At the Railway Clearing-house delegates from the different railways assemble from time to time and decide all matters relating to charges to the public, all proceedings and records of the same being private, and the decisions come to are binding. It is, for instance, an understanding that no rate to competitive points shall be quoted without the sanction of all the companies who carry goods to such places.

For example, a merchant in London, having a special consignment of goods for Leeds, makes application to the London and North Western Company for a rate of carriage for his particular case. This cannot be arranged without consulting both the Midland and Great Northern Companies. A large number of other compacts and agreements are entered into. It was expected that competition would regulate railways, but, instead of this, the railways regulate competition. George Stephenson said, "Where combination is possible, competition is impossible."

The following extract from the Report of the Com-

mittee already mentioned will also help to show how truly this has been exemplified in the case of railways: —"Wherever different companies run between the same places they arrange their prices. For instance, not only do the London and North Western, Midland, and Great Western make the same rates between Manchester and Southampton, but bind themselves by agreement not to make lower rates; and if a new railway should ever be started with a promise of lower rates, it is sure, after a short time, to arrange with its original rivals a system of equal charges."*

It is but seldom that any company ventures upon an independent policy. Should the experiment be tried, the other companies combine to nullify it. The only specimens of modern railway enterprise of this sort were, as will be remembered, introduced by the Midland company. The arrangement made without consulting others, to convey third-class passengers by all trains, and for the abolition of second-class carriages, gave great offence, and subjected this enterprising company to much obloquy at the hands of the executive of other railways; but the Midland was made more popular than ever with the public. To thus depart from the general railway compact was quite an exceptional case, and we cannot hope for many, if any, repetitions.

Traders and the public generally must dismiss from their minds the supposition which has so long been prevalent, that where there are points of competition the terms and conditions of conveyance will of

* Page 25.

necessity be the most liberal. It is no unusual thing for traders to be told in effect by the railway companies, "We cannot make the concessions you ask, we cannot quote the through rates you require, because of our arrangements with other companies." In dealing with their stations which are non-competitive, the companies are not so much hampered by compacts and agreements, and this freedom of contract is often used to the public advantage. Nothing more need be said to show that the competition theory has entirely failed to produce the desired results, and that it is in the power of the companies to join each other in arbitrarily imposing upon the public the most exorbitant charges, and inflicting the most unreasonable conditions.

Again, whilst competition exerts so limited an influence on railways, competition amongst traders of every description grows more and more intense every day. It is constantly assuming new forms; indeed, there is no limit to the new shapes which it takes. Hence the profits on manufactures have naturally a downward tendency. Whether or not a trade can be done at all must frequently depend, in the very first place, on the cost of transit. Railway companies may or may not listen to representations made. If they persist in a determination not to concede in any degree, the trader is simply helpless. The power which is thus in the hands of the companies cannot be over-estimated.

But the competition in trade and commerce is not confined to this country. In the world's markets

competitors are harassing us to a considerable extent, and our great industries require all the encouragement that can be afforded. In the iron trade, for example, we have powerful continental competitors. It may be said to be running away from the question in hand, but it cannot be denied that in connection with this important matter the cost of carriage acts as a prominent factor. It certainly seems anomalous that Belgian iron should be supplied for use in Yorkshire; but it is a fact that iron girders were sent from Belgium to Sheffield in January, 1878, to be used in a large building there.

Such is a general view of the present position, and it would seem that the condition of things, as described, is from the very constitution of railways inevitable. It has been shown that, notwithstanding the absence of entire amalgamation by legal process, all the companies in many respects act in concert. There would seem to be a tendency towards complete combination. Notable movements in this direction may be noticed. During the year 1876 efforts were made to bring about a fusion of the Great Eastern and Great Northern Railways, but the two Boards have, as yet, failed to come to terms. Such a partnership might be made conducive to public interests, and the Great Eastern would profit by the more enterprising and progressive policy of the Great Northern. Then there are proposals for the amalgamation of the London, Chatham, and Dover with the South Eastern lines, already worked in unison. The Midland and Great Northern are anxious to absorb the Manchester

and Sheffield and Lincolnshire, and there are indications of similar movements in other quarters.

Since, then, practical combination amongst railway companies appears inevitable, it would seem the best policy to encourage actual amalgamation, so as to reduce working expenses. But the parliamentary sanction of combinations should be concurrent with legislation for the enforcement of such regulations as would protect the public. The more complete the monopoly, the more stringent ought the laws to be which should regulate it.

Mr. James Allport, during his examination before the Select Committee, 1872, expressed it as his opinion that the country might be fairly divided into four or five districts.* This might be a good arrangement, but there would be considerable difficulty in defining the extent and the boundary of each division or district. This may be taken as the railway view of the question; but, were such a plan carried out, there would still remain many of the disadvantages existing in the present distribution of the system.

But the most important consideration of all is this: What course can be adopted, in the interests of the public, to set over against the almost complete concerted action of the railway companies? The most effective plan would be, perhaps, to meet combination by combination. There are vast interests in connection with the carrying trade of the country, common to every department of the commercial world, and it would not be difficult for the principal branches of

* Minutes of Evidence, p. 40.

trade to form one National Railway Association, for the purpose of disseminating the most reliable information upon the subject generally, and for taking concerted action whenever occasion demanded. An organization such as indicated, composed of thousands of members paying a nominal subscription, with a recognized and well-conducted organ of the press, proper officers, including such as have had good practical railway experience, and others well versed in railway law, might render to the country at large a service which it would be impossible to measure, and this, be it remarked, without any such result as the prejudicing of the interests of railway companies. There have been occasions in the history of railway enterprise when it would have been well if the companies could have been saved from themselves. The object of such an association could be none other than to further the development of the commercial prosperity of the nation, and any progress in this direction is inevitably coincident with the expansion of the best interests of our railways.

CHAPTER XIX.

RAILWAY LEGISLATION.

He would be a venturesome writer, indeed, who in one book, much more in one chapter of a book, should attempt to unravel the whole of the mysteries of the vast realm of railway law. The present essay will only be expected, therefore, to give a hint, and that a very slight one, as to the tenor and extent of legislation in this direction. But, first of all, it will not be amiss to refer to the views of Mr. Robert Stephenson, expressed by him in a *resumé* of the railway system on the occasion of his taking the chair as president of the Institution of Civil Engineers, in January, 1856. He said, "Little more than a quarter of a century has elapsed since Parliament first began to legislate for railways. In that period a multitude of laws has been placed upon the statute book, which will certainly excite the wonder, if they fail to be the admiration, of future generations. The London and North Western Railway alone is regulated, as is shown by a return of Mr. Hadfield's, by no less than 186 different Acts. But it is not so much the number

of the statutes regarding railways that excites surprise. The extraordinary feature of the parliamentary legislation and practice consists in the anomalies, incongruities, irreconcilabilities, and absurdities which pervade this mass of legislation. A Commission was appointed a few years since for the consolidation of the statute law. If ever that Commission should have to deal with railway law, it will find itself in a dilemma. It will find that the legislation for railways, both in principle and in detail, is utterly irreconcilable, and that the only way of escaping the difficulties of the position would be to sweep away the whole from the statute book and legislate afresh."

If all this was true in the year 1856, what must be the position after additional and similar legislation extending over more than twenty years?

The first Act of Parliament authorizing the making of a railroad was the 31 Geo. 2 (1758), having reference to the road used for carrying coal to Leeds. In 1801 the Surrey Iron Railway Company was incorporated, with power to construct an iron tramway for public use. From that time up to and including the year 1840, 299 railway Acts were passed. In the Report of the Joint Committee of 1872, it is stated that at that time there were probably more than 3000 special Acts of Parliament relating to railways.

An additional six years' legislation has probably added between 400 and 500 to the number, for in 1876 ninety-two bills were deposited, and seventy-four in 1877. The remarkable position is this, that

if any single railway company of importance be taken, it will not be found that there is any general Act applicable for all purposes to the whole system, but that one special Act will refer to a few miles here, another Act to a few miles there; then, one Act will repeal certain provisions of some previous Act or Acts, some Acts will contain maximum rates, some will not, and others will say, "For the purposes of rates, the line will be considered as part of the existing undertaking;" so that it seems well-nigh impossible to be quite sure when you have possession of all the enactments which apply to any given mile of line. But, presuming there be no doubt hereon, the phraseology is frequently so delightfully vague that it is dangerous to attempt an interpretation.

In 1844 a Parliamentary Committee was appointed, of which Mr. Gladstone was chairman, to consider the legal status of the railway companies. An elaborate report was issued, and this was followed by a bill introduced by Mr. Gladstone in the same year of 1844. After undergoing considerable revision it was passed (Act 7 & 8 Vict. c. 85), the following being one of the provisions:—"That whatever may be the rate of divisible profits on any such railway, it shall be lawful for the said Lords Commissioners, if they shall think fit, subject to the provisions hereinafter contained, at any time after the expiration of the said term of twenty-one years, to purchase any such railway with all its hereditaments, stock, and appurtenances, in the name and on behalf of her Majesty, upon giving to the said company three calendar

months' notice in writing of their intention, and upon payment of a sum equal to twenty-five years' purchase of the said divisible profits, estimated on the average of the three then next preceding years. . . ." The same Act also provided that every railway company should convey passengers by at least one train each way daily, at a charge not exceeding one penny for each mile.

In 1854 Mr. Cardwell's well-known Act was passed (17 & 18 Vict. c. 31) "for the Better Regulation of the Traffic on Railways and Canals," with the following important clause :—"2. Every railway company, canal company, and railway and canal company, shall, according to their respective powers, afford all reasonable facilities for the receiving and forwarding and delivering of traffic upon and from the several railways and canals belonging to or worked by such companies respectively, and for the return of carriages, trucks, boats, and other vehicles; and no such company shall make or give any undue or unreasonable preference or advantage to or in favour of any particular person or company, or any particular description of traffic, in any respect whatsoever, nor shall any such company subject any particular person or company, or any particular description of traffic, to any undue or unreasonable prejudice or disadvantage in any respect whatsoever; and every railway company . . . shall afford all due and reasonable facilities for receiving and forwarding all the traffic arriving by one of such railways or canals by the other, without any unreasonable

delay, and without any such preference or advantage, or prejudice or disadvantage as aforesaid. . . ."

Many important cases under this clause were tried at the Court of Common Pleas. The jurisdiction in this matter is now transferred to the Railway Commissioners.*

Clause 7 of this Act, relating to the liability of the companies for damage or loss of goods during transit, has already been alluded to in the chapter upon rates for the conveyance of merchandise.

An Act† dated July 31, 1868, enacted that there should be exhibited "in a conspicuous place in the booking office of each station on their line a list . . . of the fares of the passengers . . . from that station to every place for which passenger tickets are there issued;" and "that all railway companies, except the Metropolitan, should in every passenger train composed of more than one carriage of each class, provide smoking-compartments for each class of passenger." It also provided that the companies should be bound on application to furnish particulars of charges for goods, *i.e.*, distinguish how much is for conveyance, how much for loading, etc.

Parliament has again and again endeavoured to deal effectively with the great question of a proper regulation of our railways; but, notwithstanding all the legislation which has thus been produced, the great object in view, namely, the passing of such measures as should provide complete and adequate public protection, has not attained to a full and neces-

* See next chapter. † 31 & 32 Vict. c. 119.

sary development. Many of the Acts of Parliament have been subject to such a powerful railway influence, that some of their provisions—and these the most important ones as regards the public—have been rendered to a large extent nugatory. It is not surprising that, under such conditions, to resort to law with a great and powerful railway company has been, and indeed is now, considered too formidable an undertaking to be hastily attempted by any single individual. But further, not only was it found years ago that the Acts of Parliament in themselves were inadequate and not sufficiently explicit, but that to deal with such subjects a tribunal was necessary which possessed a practical acquaintance with the subject.

Upon this point the following is the view of the late Lord Campbell, expressed during a debate in the House of Lords on "The Canal and Railway Traffic Act, 1854":—"They were to form a just judgment on all matters of complaint relating to railway management that might come before them, and they were to lay down a code of regulations for the government of railway companies. The judges, and himself among them, felt themselves incompetent to decide on these matters. . . . They should have a lay tribunal for the decision of questions of the nature contemplated by the bill, and not one composed of judges."

In the foregoing a mere allusion has been made to some of the Acts which more directly affect the public than do many others. To go into further

detail would be only to weary the reader unnecessarily, and could answer no good purpose. And not only so, but there would be the difficulty as to where to begin and where to finish. Suffice it to say that there is no department of English law which is in so complete a state of chaos as that relating to railways; and, further, in connection with no other branch is it so important that the state of things should be the very opposite of this. Would it not be well to adopt the advice of the late Mr. Robert Stephenson —"Sweep away the whole from the statute books and legislate afresh"?

CHAPTER XX.

RAILWAY COMMISSIONERS.

It has been pointed out how unsuited are the ordinary law courts of the country to deal with many matters relating to the working of our railways. It was found that if there was to be any more substantial guarantee that justice should be meted to the public, there must be some exceptional legislation, and the appointment of the Railway Commissioners was a step in this direction. A large amount of evidence on the subject of the relations between the public and the companies, and the jurisdiction of the law courts relating thereto, was received by the Joint Committee of 1872. There was a pretty general concurrence of opinion that the time had come when a lay tribunal should be appointed, to which appeal might be made for the redress of grievances. From the report of the Committee it was made apparent to Parliament that it was absolutely necessary that such a court should be established. The following is the recommendation of the Committee as to this point:—"To perform the various duties referred to in this Report a special

body should be constituted, entitled the Railway and Canal Commission, which should consist of not less than three members. They should be persons of high standing, of whom one should be an eminent lawyer, and one should be thoroughly acquainted with the details and practice of railway management."*

There are many other important suggestions, and the Report concluded as follows:—

"If the above recommendations are adopted by Parliament, they will not have the effect of preventing the growth of railway monopoly, or of securing that the public shall share, by reduction of rates and fares, in any increased profits which the railway companies may make. But the Committee believe that their effect will be:—

"*a.* To preserve the competition which now exists by sea.

"*b.* To give immediately such support as is practicable to competition by canal; and both immediately and ultimately to develop and utilize the capacities of canals.

"*c.* To let the public know what they are charged, and why they are charged; and to give them better means than at present exist for getting unfair charges remedied.

"*d.* To enforce the harmonious working and development of the present railway and canal systems, so as to produce from them, in the interest of the public, and at the same time of the shareholders, the

* Report, p. lii.

greatest amount of profitable work which they are capable of doing."

Lord Carlingford (then Mr. Chichester Fortescue, and President of the Board of Trade) was chairman of the Committee, and by him was undertaken the work of introducing a bill into Parliament based upon the Report of the Committee. The question created a good deal of interest, both in and out of the House of Commons. On the part of the railway companies much opposition was aroused; point after point was contested with great vigilance, and the powers which it was intended to give the Commissioners were, as a consequence, considerably diminished. At length the bill passed both Houses of Parliament, as "an Act to make Better Provision for carrying into effect the Railway and Canal Traffic Act, 1854, and for other purposes connected therewith" (36 & 37 Vict., ch. 48), dated [21st July, 1873]. This has proved to be one of the most useful products of the legislature as regards railways. Much curiosity was manifested, as well as much anxiety, as to the gentlemen who should constitute the Commission. The appointments made gave almost universal satisfaction, the following being those selected:—

1. The Right Hon. Sir Frederick Peel, K.C.M.G., P.C., of Hampton-in-Arden, Warwickshire, second son of the late Sir Robert Peel, Bart. He was born 1823, called to the Bar 1849; was High Sheriff of Warwickshire in 1873; represented Leominster in Parliament 1849–52, and Bury 1852–57 and 1859–65; was Under-Secretary of State for the Colonies 1851–52, and again

1853–55; Under-Secretary War 1855–57, and Secretary to the Treasury 1859–1865,

2. William Philip Price, Esq., of Tibberton Court, Gloucester, was born 1817; High Sheriff of Gloucestershire in 1849; represented Gloucester in Parliament 1852–59 and 1865–73; was for some years chairman of the Midland Railway Company, an office in which he attained great popularity, and which he continued to occupy until his appointment as a Railway Commissioner in 1873.

3. H. T. J. Macnamara, Esq., who was a well-known county court judge in one of the London districts. A great loss was sustained by the death of this gentleman, early in 1877. His place is, however, ably filled by his successor, Alexander Edward Miller, Esq., LL.D., Q.C.

A court thus composed is certainly such as to inspire confidence. The office is one of the committee-rooms of the House of Lords.

Those who are interested in the subject will do well to obtain "The Practice before the Railway Commissioners," by J. H. Balfour Browne, Registrar to the Railway Commissioners. This is a valuable work, and is intended as much for the public as for the legal profession. The cases which have been submitted for the decision of the Commissioners are noted in a clear and concise form, and especial prominence is given to an explanation of the law of undue preference. As an authoritative estimate of the powers of the Commissioners, it will not perhaps be out of place to give the following extract from Mr. Browne's book.*

* Page 10.

"Although the jurisdiction of the Railway Commissioners may, in the first instance, seem rather miscellaneous, there is one principle underlying all these recommendations of the Select Committee, and all the sections of the Act of Parliament which was founded on their Report. The legislature had determined to make one more effort to counteract the evil effects of the practical monopoly which had been acquired by railway companies. It determined to encourage the public to complain of the unjust use, by railway companies, of the great powers which they had obtained and which were not covenanted for by Parliament; and with a view to making the discovery of such injustice more easy, it enacted the section which compels railway companies to show their books to the public. Further, it thought that, in the interests of the public, it might be well to give railway companies a right to demand through rates over other companies' lines, and to insure the granting of these facilities when the granting of such would really be for the benefit of the public, and when, having regard to all the circumstances, the granting of such facilities would be reasonable and proper. With the view of carrying out the provisions of this Act it created a technical tribunal. The Act was in every respect a continuance of the old policy with regard to railways. It extended that policy only a very little way."

The question is one of so much importance that it will, perhaps, not be considered out of place to recite the more important provisions of the Commissioners' Act, which immediately concern the public, accompanied by some general remarks relating thereto.

The Act came into operation on the 1st of September, 1873, one important point being that an application does not involve enormous costs such as applicants were liable to previously.

Clause 11.—In this is incorporated clause 2 of the Act of 1854, dealing with undue preference, and recited at length in the preceding chapter. There is, however, the following addition:—"And whereas it is expedient to explain and amend the said enactment: be it therefore enacted, that—subject as hereinafter mentioned, the said facilities to be so afforded are hereby declared to and shall include the due and reasonable receiving, forwarding, and delivering by every railway company and canal company, and railway and canal company, at the request of any other such company, of through traffic to and from the railway or canal of any other such company at through rates, tolls, or fares (in this Act referred to as through rates)."

The function committed to the Commissioners to deal with cases of "undue preference," etc., is a very important one, and much useful work has been done by them in this respect. The Annual Report of the Commission for 1876 thus sums up this part of the question:—

"The Act of 1873 substituted a special court of three Commissioners for the judges of the superior courts on whom the duty was originally imposed, and it was hoped that the manner in which the new tribunal would investigate complaints would cause many more applications than before to be made to

enforce the Act where there were infringements of its provisions. So far the change does seem to have had the effect anticipated, for there have been as many applications under the Railway and Canal Traffic Act, 1854, s. 2, in the three years since September, 1873, as there were between 1854 and that date."

The Report then goes on to detail and analyze the chief points of each case, thus affording great assistance to intending applicants.

With regard to through rates this clause (11) contains a number of provisions clearly defining upon what principles the Commissioners shall adjudicate in regard thereto. The next clause* enacts that:—"Subject to the provisions in the last preceding section contained, the Commissioners shall have full power to decide that any proposed through rate is due and reasonable, notwithstanding that a less amount may be allotted to any forwarding company out of such through rate than the maximum rate such company is entitled to charge and to allow and apportion such through rate accordingly."

In considering this question it must be borne in mind that the Commissioners are empowered to act only on the application of the railway companies interested. But the matter is a most important one as regards the public. The benefits which are derived from the through rate system are obviously inestimable, and it was because it was seen that there were occasionally obstacles to the arrangement of these through bookings that Parliament gave to

* Clause 12.

railway companies power to appeal to the Commissioners in case of disagreement. Traders have been, and indeed are now, put to inconvenience through the absence of this facility to pay carriage all the way to a given destination, and which the companies concerned, for sundry reasons unknown to traders, decline to grant. The appeals which have been made to the Commissioners would seem to indicate that the difficulty generally lies in the fact that small companies are unable to arrange through rates with the larger concerns.

While it is a fact that the Commissioners have no authority to interfere with the total amount of the rate proposed to be charged to the public, but only to apportion the rate as between the companies, or disallow it altogether, it was urged by the railway interest, soon after the Act came into operation, that the powers thus conferred were such as to jeopardize the safety of railway property. In fact, it was stated in a letter, dated March 10, 1877, published in the *Daily News*, and signed "S. Carter"* (a well-known railway champion), that "Parliament never could have intended to hand over to these three gentlemen the power by a stroke of the pen to confiscate the property of every railway company in the kingdom," and that "the three gentlemen who sit at Westminster as Railway Commissioners have power to cut down the rates on railways (so far as through

* This gentleman, since deceased, published a remarkable pamphlet in the summer of 1877 upon this subject; a reply to which, by James Howard, Esq., appeared in *Fraser's Magazine*, June, 1878.

traffic is concerned, which, in many cases, is the most important part) to any extent they think fit." If not so intended, such representations greatly mislead the public and the shareholders. It does not, however, require one perfectly versed in the law to decide whether the powers above described will bear such an interpretation as in this letter is put upon them.

In dealing with rates by goods train, reference has already been made to clause 14 with regard to publication of rates (see page 189). Something has also been said as to the way in which this enactment is obeyed in its general application. But further, notwithstanding the fact that the wording of this clause is so thoroughly explicit and comprehensive, the companies have, in more than one instance, compelled an appeal to the Commissioners with regard to cases where they have persisted in non-compliance with the Act, and, with a determination worthy of a better cause, have before this tribunal tried to escape obedience to the provisions of the law.

A very remarkable case of this sort was Jones *v.* North Eastern Railway Company, heard before the Commissioners in June, 1875. The complaint was that at four of their stations the North Eastern failed to comply with the provisions of the Act. It was attempted to be shown on the part of the company that the places were not stations within the meaning of the Act. Eminent counsel were heard on both sides, and the hearing extended over two days. The Commissioners decided against the company, who were

not, however, satisfied, but asked to be allowed to appeal to another court; this the Commissioners refused to grant, without troubling the counsel for the plaintiff to reply to the arguments advanced by the learned counsel for the company.

This clause (14) also provides that "the Commissioners may from time to time, on the application of any person interested, make orders with respect to any particular description of traffic, requiring a railway company or canal company to distinguish in such book how much of each rate is for the conveyance of the traffic on the railway or canal, including therein tolls for the use of the railway or canal, for the use of carriages or vessels, or for locomotive power, and how much is for other expenses, specifying the nature and detail of such other expenses. Any company failing to comply with the provisions of this section shall for each offence, and in the case of a continuing offence, for every day during which the offence continues, be liable to a penalty not exceeding five pounds."

This is a very useful provision, and the Commissioners have been, in several cases, appealed to with satisfactory results. It may be that, in some instances, the trader performs himself some of the services which the companies charge for in the rate as though they did them. The powers are of service, inasmuch as they enable the Commissioners to call upon the railway companies to show how a rate is arrived at, and how much per ton is calculated for each particular service. But this part of the Act is, to a great extent, inoperative on account of the in-

ordinate powers conferred upon the companies by their maximum rates.

The next clause,* which has relation to the latter part of clause 14, is as follows:—"The Commissioners shall have power to hear and determine any question or dispute which may arise with respect to the terminal charges of any railway company, where such charges have not been fixed by any Act of Parliament, and to decide what is a reasonable sum to be paid to any company for loading and unloading, covering collection, delivery, and other services of a like nature; any decision of the Commissioners under this section shall be binding on all courts and in all legal proceedings whatsoever."

The companies will not, if they can possibly avoid it, admit that the public are in any way interested with regard to the question of terminals. They appeal to their parliamentary powers, and say that the rates are mileage rates, and are not made up of separate sums. This is a most difficult position to contest, and as no general rule is applicable it would be useless to attempt to make the matter clear in anything like a moderate space. Applications of an important nature have been made to the Commissioners under this clause, and were a few more cases submitted it is probable that the general view of the matter might be made considerably clearer.

In addition to the jurisdiction above referred to, the Commissioners are authorized, amongst other duties, to exercise certain powers which formerly belonged to

* Clause 15. Terminal charges.

the Board of Trade, particularly as to working agreements between the railway companies.

The last clause* is as follows:—"This Act shall continue in force for five years next after the passing of this Act, and thenceforth until the end of the then next session of Parliament, but the expiration of this Act shall not affect the validity of anything done before such expiration."

During the latter part of 1877 the reappointment of the Commissioners engaged considerable public attention, as it was considered that during the parliamentary session of 1878 the subject would in all probability be dealt with. On the part of the railway interest much has been said in letters to the press, but more especially at shareholders' meetings, animadverting in no very measured words or tones upon what is called the extraordinary powers of the Commissioners, and the advice has been given to all interested in railway property to use their influence over their representatives in different parts of the country in order to get the views of railway directors adopted by the House of Commons. In this matter the chairman of the Great Western Railway, Sir Daniel Gooch, M.P., has taken a leading part; at two successive half-yearly meetings he took occasion to urge his ideas upon the proprietors. In both cases, however, there were shareholders present who expressed it as their opinion that the Railway Commissioners were doing an immense amount of good. One shareholder said "the public were much more likely to get justice

* Clause 37. Duration of office.

from them than from the courts." There are indications that when the matter is brought before the Houses of Parliament there will be considerable resistance on behalf of the railway companies.

The public view of the question has been vigorously taken up, especially by the Chambers of Commerce and the Association of Agricultural Engineers. They recommend that the Commissioners should not only be reappointed, but that their powers should be increased. It is urged especially that the right of appeal to the Commissioners with regard to through rates should not be limited to the companies, who may wait a long time before they decide to quarrel with each other in the interest of the public. With regard to this question, the Commissioners in their Annual Report for 1877 make the following remarks: "We have seen it stated here and there that this right [to allow or refuse through rates] is fraught with possible danger to railway property. But certainly as yet it has done no harm; rather it has been of excellent effect as an additional motive to harmony of arrangements, and an additional motive to connected companies to act as one concern in providing for the forwarding of through traffic. At the same time the power we exercise in this matter is clogged with some restrictions, which would be better removed, and of course a power that can only be exercised at the instance of a railway company is no help in cases where the interests of the railways and the public are different. . . . We are authorized to make any division of a rate we please, but if we grant the rate at all we must grant it at the

amount, as a whole, at which it has stood in the notice given of it by the applicant company to the other companies. We would suggest that we should have the same power over the amount of a through rate that we have over its apportionment."

In the same Report is also the following recommendation:—"It is well known that the charges which a company may take must not exceed the maximum tolls authorized by the special Acts. It has been less noticed that they must also be reasonable; and even where a company is empowered to charge any rate it thinks proper, as for the carriage of packages not exceeding a certain weight, generally five hundredweight, the power is not absolute, the charge must still be a reasonable sum. . . . It deserves consideration whether it would not be well that this important qualification of reasonableness were made of practical value, and security taken by its being observed, by our being authorized to enjoin the reduction of unreasonable charges, just as we enjoin the reduction of unequal charges."

It is of the utmost importance that the provision of the Commissioners' Act as to publication of rates should be rendered of more practical value. The state of the case has already been commented on (page 189). Perhaps the most effective mode of enforcing obedience would be for an inspector to be appointed, under the supervision of the Commissioners, who, amongst the performance of other duties, might make periodical visits to the stations to see if the Act is fairly complied with. Up to the present it has been

known only to a small extent that the public could demand inspection of the rate-books, and the companies have taken no step towards publishing the fact.

It may be that not quite so much has been accomplished by the Commissioners as the most sanguine expected, but very much has been achieved. The result has been that the law which already existed, and which could not be put into force on account of the complicated and expensive machinery necessary to bring it into action, has under the more simplified jurisdiction of the Commissioners, been made more extensive in operation and more beneficial in effect. The judgments of the Commissioners have been characterized by impartiality, no less than by great clearness. There are indications that each case has been thoroughly mastered in every detail. It would be difficult indeed to establish a court where there should, in any larger degree, be combined all the necessary qualifications.

Railway companies object to interference of any and every kind, and it is perhaps no matter for surprise that their criticism with regard to the powers of the Commissioners should be somewhat severe. It may safely be contended that the action of the Commissioners will under all circumstances tend to the expansion of the railway system. If a manufacturer succeeds, as the result of an appeal to the law, in getting restrictions removed either as regards charges or facilities, he will, in order to develop his business, give at least some of the advantage to his

customers. It is from this spirit of enterprise, on the part of manufacturers and merchants, that the companies are very largely indebted for the success they have achieved. It is a mere truism to say that the development of trade and the development of railway traffic are coincident, but yet the companies seem to lose sight of the fact. They have themselves to thank that exceptional legislation, such as the appointment of the Commissioners, was necessary. It is essential in the interests of the trading community, yea, it is for the interests of the companies themselves, that the Commissioners should be reappointed, and moreover with powers considerably increased.

It has been contended, in the railway interest, that the Commissioners' Act does not give sufficient power to the companies to appeal to other courts from the decision of the Commissioners. In answer to this it may be stated that it would be an anomalous proceeding for the judgments of a court specially constituted to deal with railway matters to be subject to reversal by courts which have been adjudged to be incompetent to deal with such cases. Again, if in every case it were left open, without the slightest hindrance, for a railway company to appeal, where is the aggrieved trader who would subject himself to the risk of being taken from one law court to another with the possibility of law expenses involving simple ruin? And then there is a vast difference between the personal risk of the individual who has to force justice from a railway company, and the position of railway managers who fight with the shareholders' money.

In discussions with regard to railway legislation, as well as in the making the laws which are supposed to regulate railways, it would seem that sufficient consideration has not been given to the vast difference there is between the public and the companies as contracting parties. In his book* Mr. Balfour Browne states the position clearly. He says: "Free contract does not mean one party to do as he likes, but both parties to do as they wish. Now, the same is the case with regard to railway companies and the public. The immense power of the former makes the relation between them and individuals very much like that between a man and an infant, and instead of making the public incompetent to contract (as if by reason of nonage) the law has made the railway company's contracts liable to supervision, and in case these in any way tend to promote the improper interests of the company, the law has given a means of preventing the continuance of the grievance."

The relations of the railway companies and the public are so exceptional, that it may be pardonable if some liberty be taken with the rules of sound reasoning. The position is, of course, incapable of practical illustration, but let it be imagined that a colliery proprietor were in a position to say in effect to a railway company—Here is my coal; my price is so and so; you must accept my terms, as I have a monopoly of the coal supply. If, in addition, the colliery owner had it in his power to punish the railway company for grumbling at the terms exacted,

* Page 13.

would not such a state of things be resisted with even more vigour than is the imposition of the passenger tax? As this describes the relationship between a consignor and the companies, it will be seen how desirable it is that the Commissioners should have adequate powers to deal, and that finally, with well-established complaints.

Notwithstanding the fact that so many more cases have been submitted to the Commissioners than to the jurisdiction which was in the hands of the Court of Common Pleas, it is urged, by those who would like to see the new tribunal abolished, that the Commissioners have not enough work to keep them employed. If this be so, it will not be difficult to enlarge the scope of their operations. But there is another view of the case. Whilst the law exists in order that it may be appealed to in cases of infringement, it is satisfactory for all parties if the power of legislative enactments operates as a preventive. The Railway Commissioners should be a terror to the railway companies who are evil-doers, and a praise to them that do well.

CHAPTER XXI.

RAILWAY REFORM.

From their commencement the condition of our railways has been a fruitful topic for comment, and dissatisfaction on the part of the public has been again and again expressed; on the other hand, supporters of the railway interest have endeavoured to prove that no small amount of the criticism advanced has been devoid of supporting evidence. The question of railway management is to all intents and purposes a public one, and the enlightenment of public opinion—said to be the ruling power of the nation—on a subject so fraught with great national interests, is surely a legitimate undertaking. It is not supposed that a panacea has been discovered, which will cure all the grievances in connection with the present system. On the other hand, a strong measure of railway reform might be introduced with public advantage.

The rise and progress of railways may be characterized as one of the marvels of our civilization. The danger is lest this remarkable progress, and the

advantages already obtained, should conceal the fact that there are large resources unexhausted, and capabilities which have not attained their full development. A large amount of the criticism of the past has been aimed at the management indiscriminately. The probability is that other men would have acted very much in the same manner—perhaps not have succeeded nearly so well under similar circumstances. It must not be inferred, however, that the position of the managers has always been invulnerable; but in discussions on this subject, the main part of the case, that relating to the constitution of our railways, has frequently held a secondary place, and sometimes been left out altogether. It is not so much that the men who control need to be changed, as that the entire system needs to be completely reorganized and consolidated.

Reference has already been made in the preceding pages to causes for complaint in connection with many departments of the railway organization; another grievance must be here noted.

In many places the lack of convenient and sufficient train accommodation is much felt. Especially is this the case at certain junctions connecting one company's line with some other. So awkward are these train arrangements, in some instances, that one is almost forced to the conclusion that especial care has been taken to produce the largest amount of inconvenience possible. You wish, for example, to travel from A to C, the junction for which is B. Your train is timed to arrive at B two minutes after the train from B to C

is due to start, and there is no other train for an hour. This is not an imaginary case, and many of a like nature could be quoted. Public accommodation is made subservient to the companies' interests, and the inference is that all sorts of arrangements are made to compel the use of some particular route. The following is a forcible illustration of the perversity of railway companies in this respect :—

A passenger at Norwich wishes to get to Oxford. According to "Bradshaw" he may start at 5 p.m., arrive at Cambridge 6.57; leave Cambridge 7 p.m., arrive at Oxford 10.25. Supposing the Great Eastern train is punctual, and that the passenger is tolerably dexterous, the feat of catching the train may be accomplished. But this 7 p.m. train missed, the last opportunity, on that day, of proceeding is lost. The London and North Western Railway Company do not profess to run in connection with the train referred to, for in their local time table it is shown that you must leave Norwich by a previous train, which is timed to start at 2.20.

Take another case. A traveller leaves Oxford at 10.25 a.m. by the London and North Western Railway, his destination being some station on the Great Northern Railway. On arrival at Sandy, where the train is due at 12.32, he finds that the Great Northern train, timed to leave at 12.26, has gone. He will perhaps be told, "Gone just two minutes, sir;" or he may possibly see its departure at the very moment of his arrival.

Again, one of the Midland Company's express trains

from the north is due to arrive at Gloucester at 6.48 p.m. The Great Western train for the Swindon district is down for departure at 6.45, the next train being at 12.20 a.m. A passenger thus misses one train by three minutes, to wait about six hours for the next. It would not be difficult to extend the list well nigh *ad infinitum*. Even to accustomed travellers, the times of the trains, especially at junctions connecting different companies' lines, are a source of much anxiety, and many a puzzle has to be unravelled in preparing an acceptable route.

It is remarkable what little effect representations made by the public, as to the absence of proper facilities, have upon the companies, who reserve to themselves the right of being the best judges as to what circumstances demand, and are ever ready with plausible reasons why the concessions asked should not be granted.

But the great public grievance lies in the fact that, in consequence of the disunity of, and at the same time the monopoly inseparable from the system, passengers and merchandise are not conveyed either as cheaply, as safely, or as expeditiously as they might otherwise be. Our railways are in the hands of a number of separate bodies with conflicting interests, each striving to pay the best dividend to the shareholders, as purely commercial concerns. Many of the companies, as already remarked, professedly compete with each other, but this, from sheer force of circumstances, gives all the disadvantages with very few of the advantages of competition.

"Whoever holds the railways holds a monopoly, and that should only be allowed to exist in the possession of the State subject to the responsible advisers of the Crown." This is the view of the Belgian Prime Minister, M. Rogier, expressed in the Belgian Chambers forty years ago, and the proposition has gained in force. Some railway magnates have propounded a theory that the present system does not constitute a monopoly. As to the soundness of this speculation, let it be tested by comparison with the nature of other commercial undertakings, such as the iron, coal, or cotton trades. In the case of the railways the trader is absolutely bound to accept the terms and conditions offered, such terms and conditions being precisely the same in point of cost, and practically the same in every other particular, no matter how many routes there may be to a given point. With regard to the trades mentioned there is complete freedom of contract. With the liberty to exact the most exorbitant charges, and to impose the most annoying restrictions, it is therefore in the power of railway companies to encourage trade or otherwise at their pleasure. It may be said that this power has not been used arbitrarily. Without waiting to discuss the point, it cannot be controverted that there is danger in the possession of such a power.

What the country needs is a harmonious railway system, in connection with which the first and chief object shall be the provision in every respect of the best facilities for the transit of passengers and merchandise, at the lowest possible cost, by means of

which one place shall be brought as near to another as possible. We want a railway organization that shall be capable of the fullest development, in view of the increased necessities of the future, and the vast trade developments which may be expected. We want a system as far as possible purged of all mystery and complication, and where there shall be no place for conflicting and sinister interests. In many cases the accommodation afforded is inadequate. We have serious delays through crowded lines, accidents without number (the proverbial goods train being the most popular obstruction) resulting in wholesale destruction of life and property. The need for separate lines for goods and passenger traffic becomes more and more a matter of necessity; next in importance comes the want of the general employment of continuous brakes. But both the disposition and capacity of the railway directors are out of all proportion to the demand. The necessary outlay would be so great, and this without any comparative increase in receipts, that delay is not surprising.

It is well to inquire whether our railways are worked on economic principles which are the most sound. And the answer is not far to seek. For is there not a vast waste of public money, and this owing entirely to the constitution of our railways, the resources of the country being weakened by having to maintain a large, unwieldly, and so-called competing system, split up into numerous sections for certain purposes, instead of one complete and uniform organization worked wholly and solely for the public good?

It cannot be too repeatedly urged that under the present *régime* it is useless to anticipate that the best results can be obtained.

The railways of a country should be conducted primarily for national purposes, and there should be a guarantee that their administration should be amenable to popular opinion and necessity. It has become conclusive that the railway system of this country cannot be made sufficiently subject to this public influence; and, as has been shown, the power of legislation, as hitherto exercised, has failed to accomplish the most desirable results. The necessity, therefore, for the adoption of more effective means of control forces itself into notice. One of the greatest needs of this country, in the existing lassitude of business, is the acquisition of some new and powerful impetus, that shall revive our trade activities and improve and strengthen our commercial status. It would be well if some beneficial change could be introduced into our facilities for intercommunication, one of the main bases of commercial prosperity. Were our railways worked under the most favourable conditions, the cost of transit might be made much cheaper, and the stimulus which would be given to the nation's industries would be incalculable. The old coach and waggon were found cumbersome and inadequate, hence there came a demand for more expeditious and less costly locomotion. The beneficial results everybody knows. The existing railway system has had a tenure of half a century, and it cannot be amiss, after such a long and eventful

history, for the question to be asked if the time has not arrived, or will not soon arrive, when there should be a new point of departure in connection with the great carrying trade of the country? There are those who hold the opinion—and is it not a sound opinion?—that our iron roads do not keep pace with the times, and that they need to throw off the old and assume a new state of existence; that all the elements of good which our railways possess shall, by a complete concentration of all their vast resources, be made to yield a maximum of benefit at a minimum of cost; that our railways shall be in reality the nation's highways.

To insure the greatest possible success, it is absolutely essential that there should be central control. It is not probable that complete and absolute amalgamation will be brought about by the voluntary action of the railway companies. There are no inducements sufficient to produce this, and the power of public opinion as at present exercised is certainly incompetent to compel it. Supposing, however, that a complete unity could be effected, railways would still be worked on strictly commercial principles. There might, it is true, be a vast saving in working expenses, but there would be created a complete and gigantic monopoly, ruled not so much by public necessity as by the powers of commercial speculation. There comes, then, the alternative of State control. It must be readily granted, for reasons most manifest, that the general industries of the nation are as a rule safest in the possession of private parties. Any unnecessary interference with private enterprise would

be most impolitic; but here is a case, undoubtedly, where complete Government control is essential. We have large associations of capitalists in possession of a monopoly of our railways, which, from their very nature, are not subject to the laws which obtain in connection with other commercial corporations. The vast difference between an ordinary manufacturing establishment and a railway company must be manifest to the most superficial thinker. The manufacturer has an almost unlimited number of competitors, small and great, and subject to indefinite increase and variation. To the railway companies extraordinary powers are granted by Government, and at the same time the right—the sole right—to supply carrying power between certain points.

What might be expected from State control? A saving so great that rates and fares might be sensibly reduced. If a great reduction in the general staff could not be immediately made, a redistribution, with a view to increased efficiency, is very necessary. In rolling stock the saving would be immense, for in many cases one train would suffice where two are now required. In 1875 the lawyers' bill and parliamentary expenses amounted to £299,744. A large proportion of such costs would, of course, be unnecessary under Government control. In many places one station would suffice where there are now two, and in small country towns or villages the railway depôt might also be the postal and telegraph office, and the station-master be likewise the post-master and telegraph superintendent. The services of a large num-

ber of directors, with their fees, might be dispensed with. Mr. Stewart, who was for twenty years secretary to the London and North Western Company—a competent witness therefore—stated in his evidence before the Royal Commission, in 1865, that were the whole of the traffic of the country worked in unison, there would be a saving of 20 per cent. in working expenses. The question is one worthy of the attention of shareholders. Many of their number complain of the amount of unproductive capital. In 1875 £35,678,393, representing ordinary stock, was without interest. Further demands upon capital are requisite in the great necessity for separate lines for goods trains, and in the provisions of safety appliances. There has always been an outcry against useless expenditure in the formation of our railways. At a meeting of the Cobden Club some years ago, Mr. Gladstone estimated the loss in this direction at between £100,000,000 and £200,000,000 sterling. The tendency is still in the same direction, and any change which would check its progress would be welcome.

An idea has obtained some acceptance that this anticipated alteration in the railway constitution would necessitate an entire change in the *personnel* of the management. There is no reason for any such apprehension; the same staff would be absolutely essential to successful working. The executive officers of our railways are men who, in most cases, have from sheer force of ability found their way to foremost places. With administrators such as these, who have contributed so much to the development of, and the

benefits derived from, the existing order of things, what might be expected were they left entirely unfettered by all conflicting interests such as now exist, with the one *desideratum* to work out—the best interests of the public? Under such new and favourable conditions, the conduct of a national system of railways could not be placed in better hands than those of a board of directors composed of the managers of our principal railways. In the Railway Clearing-house there is at least the nucleus of a new Government department, so that the change in the staff would amount to little more than the payment by new masters, and an assimilation of colour and style of uniform. It is not unnatural that vested interests should be powerfully arrayed against State intervention. There are numbers whom the existing system pays well, but whose occupation would possibly be gone were Government management introduced. The difficulties connected with an undertaking of such magnitude are undoubtedly great, but the interests of the nation at large are involved, and the question, therefore, is worthy of the gravest and fullest consideration. As a financial transaction, whilst this might be made a formidable difficulty, it is possible for it to be reduced to a comparatively simple matter.

It is not within the scope of the present object to discuss this phase of the question. This is a matter for the professional financier. As to the practicability of the scheme, Lord Derby, who is no visionary, said at a meeting of the Society of Arts, in 1873, "He had not the slightest doubt that if the public really wanted

the railways purchased by the State, it could be done —the question of price would not present any insuperable difficulty."

The fear of political influence is one of the principal objections urged by those who oppose State control. It is contended that such a vast amount of patronage in the hands of the Government, as would be connected with railways, would be a dangerous element. It is thus assumed that an immediate connection with the Ministry of the day would be inevitable. This would not follow by any means. As Mr. Bass, M.P., has suggested, a separate and distinct department would be needed, with permanent officials, such as the staff of the Board of Trade. There is no evidence to show that a State system of railways would, of necessity, be a political machine.

As to political influence, railway legislation is now, and always has been, tempered with a good deal of this element. In the two Houses of Parliament there are about two hundred railway directors, many of whom are on the boards of two companies, while some share in the directorate of three or four companies. A change could not but be for the better in this respect. The experience of Government management of the post-office has, again and again, been cited as a precedent, and fairly so. The national advantage which has resulted from State control of the telegraphs is also beyond question. It is true that through mismanagement, particularly in the minute subdivision of official positions, a financial success has not been realized; but the balance-sheet deficit

is as nothing compared with the national benefits bestowed in the shape of reduced charges and increased accommodation. The experience gained is of immense value as preparing the way for the larger and more important measure, the control of our railways. The management would not be likely to err in the direction of the weakness manifested in the telegraph department. The railways, telegraphs, and post-office are kindred institutions, and not until they are worked in complete unison can we derive from either the full measure of benefit which it is capable of affording.

A hundred years ago the idea that steam should form a motive power was considered as utterly incapable of realization. Is the idea altogether utopian that, a hundred years hence, some new and powerful force may be brought into action such as to surpass even the power of steam? In fact, this contingency was seriously admitted by a man so practical and unromantic as the present Lord Derby, in giving his voice against the proposed purchase of the railways by the Government. Such an agency would, perhaps, appear as wonderful to us as steam did to our ancestors a century ago. But the particular object here is to point out the remarkable fact that it has been advanced, as an argument opposed to State management, that there would be a tendency to check any change in the mode of communication, and that there would not be the same encouragement, and probable reward, given to inventors as there would be under other circumstances. It is somewhat difficult to see how such a view can be supported. On the other

hand, is it not probable that, if railways had been under Government control, the block system and interlocking of signals and points would have been generally introduced at a much earlier period; and is it not conclusive that, under State management, the public would have compelled, if this had been necessary, a settlement of the question of the best plan of continuous brakes, accompanied by a general use of the same, the introduction of the most efficient means of communication between passengers and guards, and other necessary improvements?

Railways, as now constituted, have had a lease of half a century, and it will soon be time to think how to provide for the coming generation. It is within the range of possibility that great changes will be created, but they will develop gradually, and come at a time when the country is ready for them, neither sooner nor later. It is not very probable that on some fine day the Government will suddenly find it necessary to announce in Parliament that all the steam engines had either to be broken up, and put on the scrap-heap, or be kept as curiosities, and that flying machines must be the first order of the day.

An endeavour has been made to show that enormous benefits would accrue from the management of railways by the State. At the same time, it should be only after the very fullest consideration of the question in all its multitudinous bearings that such a change in working the system should be introduced. It has been a common practice on the part of some critics to characterize as visionaries any who have urged the

adoption of a scheme of State purchase. Or the ability to form a correct judgment upon the matter has been questioned. For the most part such criticism has originated with those interested in keeping things as they are, and while questioning the usefulness of one proposal, have not been prepared with any other to put in its place. It will scarcely be questioned that our railways have in them the material from which it is possible to obtain a much larger amount of national benefit than is now derived. What remains to be done is that the best means shall be adopted for the attainment of the greatest public good, and if any plan preferable to State management can be devised, it will doubtless be received with satisfaction.

It is the first duty of a nation to adopt the best means for providing the most expeditious and cheapest mediums for commercial intercourse. The degree of freedom in the exchange of property which is granted to the citizens of any country may be said to be the measure, for the most part, of the progress and development achieved. It has been shown that, under our present railway system, there is considerable national waste and loss. Here, then, is a great question for the consideration of our legislators, who in a thorough measure of railway reform may give new impetus to the industries of Great Britain, thus place the country in a position to attain the utmost realization of her vast resources, and create for posterity an invaluable legacy.

CHAPTER XXII.

CONTINENTAL RAILWAYS.

Some of the more prominent features of the railways of the continent claim notice. In order, however, to avoid wearisomeness, the object has been to give a brief outline of those points which are most worthy of attention. There will be some interest in comparing continental railways with our own, for while in certain respects we have the advantage, there are some arrangements in connection with the lines of our neighbours which might with benefit be introduced into this country.

It was not until some years after the railway system had been inaugurated in England that its adoption found a place on the Continent. The Belgians were the first to avail themselves of the new power of locomotion. With characteristic enterprise the construction of a complete railway system was undertaken under Government control, and in 1834 the necessary authority was given by the legislature for making the lines, extending over 347 miles. The construction of railways in other countries soon followed; and it

is a fact worthy of record that, as a rule, the other countries of Europe set about the making of railways according to a defined and systematic plan, with a view to general national benefit, rather than following the example of our country, where the lines had been constructed in a haphazard fashion, with a view to serve certain localities where influence might be the most powerful in favour of the different schemes.

Both the money and the engineers of our own country have been had on loan in making continental railways. Having become acquainted with their success in England, the King of the Belgians invited George Stephenson and his son Robert to Brussels in 1835, in order to consult them as to the best mode of constructing a complete system of railways. On the occasion of this visit the father was decorated with the Order of Leopold, and when again visiting the country, six years later, the same distinction was conferred on the son. The Stephensons were engaged in connection with many important railway works in other countries. Mr. Robert Stephenson was consulting engineer in connection with lines in Sweden, Switzerland, Piedmont, Denmark, etc. Indeed, in his last public speech, made at Christiana in 1859, he said, "I have been employed in Canada, in Egypt, in Belgium, in Russia, and, I may say, in nearly every country of Europe."

The Righi Railway, on the Lake of Lucerne, may be referred to as a marvel of railway enterprise. To make a line to the summit of a mountain, 5000 feet high, could certainly have been no ordinary undertaking.

This railway, which will be briefly described, was opened in the year 1871, the terminus being at Vitznan, also the point of landing for steamers. The railway goes in an almost continuous and direct line five miles long, not as might be imagined by a zigzag route, up the mountain, the view of the surrounding country extending in interest as the height increases. The route includes an inclined tunnel, 225 feet long, and a girder bridge across the Schnurtobel Gorge. An extension of four miles from Kaltbad has been added to the original line, proceeding along the ridge of the mountain, 5280 feet above the level of the sea. The line, which is a single one with a five feet gauge, consists of three rails; the centre one is fitted with cogs. In other words, the middle rail is a ladder up which the engine climbs by means of cog-wheels fitted below the floor. The engine has a very remarkable appearance, resembling very much a huge black bottle, and when on level ground it leans on one side as if about to fall. When ascending the incline the engine assumes an upright position. Only one carriage is attached; this is ten feet wide, and somewhat resembles our tramway cars. There are nine seats placed transversely, arranged to accommodate fifty-four passengers. In ascending, the carriage is propelled instead of being drawn, but in the descent the locomotive precedes the carriage, and acts as a powerful brake. The train proceeds at a rate of about eight miles an hour. Great care is necessary to insure the road being kept in order, hence each mile of the line is under the superintendence of a man whose sole

duty is to precede the trains and remove obstructions. The Righi has been described as a mass of pudding, with millions of stones for plums; the danger is lest any of these stones should accidentally get into such a position as to prevent the proper working of the cog-wheel on the engine. A journey on this railway is looked upon by many as quite an adventure. Timid folk are advised to sit in the middle of a seat, so as to avoid the sight of the gulfs and precipices over which the line runs.

Taking a general view of the continental railway system, it may be stated that the fares for passengers are much less than in England. Illustrations of this are given below. The issue of return tickets at reduced fares is very general, and this arrangement is extended to all classes; in some countries there is a reduction of 25 per cent. when a ticket is taken for the double journey. On many continental lines the fare is legibly printed on the tickets.

As a rule we have always been behind many continental railways as regards comfortable carriages, in certain cases the second-class carriages being quite equal to our first class. To some of the trains in France and Germany, waggons containing water-closets are attached, a convenience the want of which is very much felt on English railways. As regards comfort afforded to passengers at the railway stations, our own country takes the lead. Perhaps nowhere on the continent is there to be found accommodation such as provided by our own Midland Company.

Belgium has already been alluded to as the first

to adopt the railway system. A few facts may now be noted with regard to the present position of the iron highways of this and other countries in Europe. In the year 1876 the Belgians possessed about 2173 miles, forming a communication with every town and village of importance. In 1875 about 35,000,000 passengers were carried, and an official return gives the number of accidents as nine, none being described as fatal. The fares are low, which the following will serve to illustrate:—

	English miles.	Class 1.		2.		3.	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
Brussels to Mons	38	3	7	2	8½	1	9½

Return tickets are issued at about a fare and three-fifths.

The Belgium system with regard to the rates for goods traffic is simple and perfect, and books are published in which are given full particulars of the charges for carriage and the precise amount for terminals. The exact distance between each pair of stations is also given. There is no difficulty with regard to making of through rates. Many of the lines are in possession of the State, and in connection with the whole railway system a supervision is exercised as regards charges generally. In regard to this question there is general public satisfaction.

France is in possession of a comprehensive railway system, the object having been to establish and develop a thoroughly national plan of communication. In the year 1877 there were 14,146 miles of

line open, about 13,000 miles being held by six principal companies, viz., the Northern, Western, Orleans, Eastern, Lyons and Mediterranean, and the South. In 1875 these companies paid the following dividends:—

	Per cent.
Eastern	6·60
Orleans	11·20
Lyons and Mediterranean	11·00
Northern	16·50
Western	7·00
Southern	8·00

Under certain conditions financial aid has been afforded by the State, the railways being conceded to the different corporations for ninety-nine years, at the expiration of which the Government may enter into complete possession.

As regards passenger fares, these were increased in 1871 by a war-tax. The following may be considered an average per mile:—

First class.	Second.	Third.
1.87*d.*	1.4*d.*	1.03*d.*

Return tickets to all classes are issued at reduced fares; children above three years of age and under seven are charged half fares. Passengers of all classes are allowed sixty-six pounds of luggage; any excess is charged at about one-fourth the third-class fare. In all cases passengers receive a receipt for luggage. Travelling is slower than in England. The quickest trains carry first-class passengers only. Mails are carried gratuitously.

Third-class carriages are very inferior, and the first and second not equal to those in Germany and some other countries. The railway stations are anything but attractive. There is no such freedom and general comfort as experienced in England. Where there are waiting-rooms they are as a rule small and uncomfortable. Passengers are only admitted at intervals, and no one is permitted to enter without a ticket. There is an absence of many of the conveniences found at English railway stations.

There is a comprehensive system of rates for goods traffic. A general publication is given to the classification of goods; the rates are also published, and the terminal charges are specified. In France the work of cartage and delivery is not undertaken by the railway companies, but by commissionaires. The companies are, however, responsible for the proper execution of the work, and the service must be performed at a fixed charge. The Government has the supervision of the rates, and there is every facility afforded for through traffic. Further, goods must be delivered within a specified time. There is little competition, as the system is divided into districts, and there is general harmonious working.

In Germany there is an excellent railway system—according to a recent return, 18,229 miles in extent. The carriages for passengers are excellent. Second-class carriages are equal to the first class in England; the first-class carriages are fitted up in a most elegant manner, but are little used. Separate compartments are provided for non-smokers and for ladies. The

fares are very low, the charge per English mile for four classes being in some cases as follows:—

Class	1	2	3	4
	1.50*d.*	1.12*d.*	0.75*d.*	0.37*d.*

The fares are printed on the tickets, and return tickets are issued at considerable reduction. The free allowance of luggage is fifty pounds.

A considerable mileage of the railway is in the hands of the State. At the end of the year 1870 there were in Prussia 3264 miles owned by and worked by the Government. In all other cases a Government representative is connected with the management. The question of complete State control commands much attention, and the total absorption of all the railways by the Government would seem not far distant.

The same plan of publishing the rates charged for the conveyance of merchandise, and distinguishing terminal charges, as practised in Belgium and France, is also in general use in Germany, whilst a time table is given as to conveyance of goods as well as regards carriage of passengers. The facilities for arranging through rates are considerable, and the Government exerts itself so as to produce harmonious working for the general public good.

In the year 1876 Austria had nearly 11,000 miles of railway, in the making of which the State has rendered considerable monetary assistance. The carriages for passengers are admirable, the second class, like those in Germany, being superior to those in England

Fares are very low, and there are four classes. The charges per English mile are:—

Class	1	2	3	4
	1.8*d.*	1.35*d.*	0.9*d.*	0.45*d.*

In some cases the fares are even less than those quoted.

Italy had in the year 1876, 5793 miles of railway open. Second-class carriages are comfortable; third class not recommended. The fares are low; second class being one penny per English mile, and third class a halfpenny per mile; there is also a fourth class. There is no free allowance of luggage.

In 1876	Russia	had	13,702	miles of railway.
„	Turkey	„	1888	„ „
„	Holland	„	995	„ „
„	Portugal	„	600	„ „
„	Switzerland		1382	„ „

CHAPTER XXIII.

AMERICAN AND COLONIAL RAILWAYS.

If our American cousins talk big their actions are in most cases suited to their words. They have a big country; they make big fortunes, and big failures too, sometimes; they build big hotels, and make big towns quicker than any one else can. We cannot be surprised that they have made big railways. The progress of railway enterprise has been most wonderful. A commencement was made in 1827 with a line of three miles long at Quincy, Massachusetts. The following figures will convey an idea of the remarkable progress made since then:—

In the year	1827	there were	3	miles open.
„	1837	„	1431	„
„	1847	„	5336	„
„	1857	„	22,625	„
„	1867	„	36,896	„
„	1876	„	77,470	„

At one period development was extending so rapidly that in one year (1871) 6675 miles were added. In connection with big extensions such as this it may readily be supposed that opposition to railways was

little manifested, and that no parliamentary contests involving the expenditure of hundreds of thousands of pounds sterling, such as have been experienced in this country, had to be undertaken. The Americans have been able to obtain the necessary authority from the Government to make their railways without unreasonable delay or expense. Enterprise has thus had a tolerably free course, with the result that our cousins across the Atlantic have now a length of railway more than sufficient to twice girdle the earth, and a mileage about equal to that of all the seven Great Powers of Europe.

It must be remembered that the lines or "tracks" have not been made with the same care and substantiality, and therefore not at anything like the same expense, as in this country. On many lines, for example, there is an entire absence of fencing, as well as many things that pertain to our own system. The time occupied in construction is thus comparatively small. In making the great Central Pacific Railroad, forming a direct connection between New York and San Francisco, it is said that the work of laying down the line was sometimes got over at the rate of ten or twelve miles a day. The average expenditure per mile has been estimated at £10,000. Some of the earlier lines were completed for about £5000 per mile, and in one case the cost is said to have been only about £1100 per mile.

There has not been unanimity with regard to the width of the lines. In some cases a gauge of three and a half feet, and in others of six feet, has been

adopted, so that the "battle of the gauges" remains to be fought out. But perhaps there is not the same necessity for uniformity as in this country.

The laws with regard to the use of locomotives on common roads, if there are any, are not so stringent as those in force in England, for in some places in America the lines run through the main streets, and folks must "look out for the locomotive," and teach their horses to do the same. As the trains run past the very doors of the warehouses belonging to manufacturers and merchants, deliveries of goods are effected with comparative ease.

Most people have seen an illustration of an American railway locomotive, and will remember what a cumbersome piece of machinery it looks. It is not unusual for animals, as there are seldom any fences, to stray upon the railway track, and sometimes come into awkward contact with the locomotive. As the best mode of dealing with this contingency an iron framework sloping down to within a few inches of the metals, and called a "cow-catcher," is attached to the front of the engine. This attachment is often required to do service, small animals, such as sheep and pigs, being picked up imperceptibly. A cow cannot, of course, be dealt with quite so easily. It sometimes happens that trains have to go round sharp corners. The engines are made to adapt themselves to such circumstances by being fitted with eight wheels, in two sets of four, each of which set swivels like the fore wheels of an ordinary horse carriage. There is an absence of the loud and shrill whistle of the English

engine. The approach of an American railway train is signalled by the ringing of a bell attached to the locomotive. This bell also answers another purpose, for connected with it is a cord running through the cars from end to end of the train, and thus is established an effective communication between the passenger or guard and driver.

The carriages are all somewhat of the Pullman type, open from end to end, such as used on the English Midland Railway, and replete with every comfort. A stove is provided for heating the car, there is accommodation for washing, a supply of iced water, and in many cases an attendant is provided to minister to the wants of the passengers. There are also sleeping cars in many cases. On the Union Pacific Railway, as well as on other lines, dining cars are attached to the trains, with the adjunct of a kitchen; there is also a saloon, or drawing-room, with an organ for those who are musically inclined. The travelling on this Union Pacific Railway has been compared to life in a hotel in some country suffering from chronic earthquake. The Chicago and Alton Railroad "dinner bill of fare," served in their Pullman palace dining cars in 1876, was very extensive and of a choice description, the charge being for each person seventy-five cents. In some of the cars a library of books, placed at the service of the passengers, may be met with; in others, books and newspapers are offered for sale. The advantage of a thoroughfare through the train is not lost sight of by some who, with a keen eye to business, economize time by submitting their wares to their fellow-passengers.

In an American railroad train there is not thus much fear of *ennui*, though the journeys may often be big ones. And then there is not the same attempt to classify passengers into first, second, and third, as is the case elsewhere. There are some exceptions, where additional charges are made for extra accomodation in the superior Pullman or sleeping cars, and emigrant cars (also used for "darkies") are in some instances provided at reduced rates of fare. Separate carriages for ladies and the gentlemen who accompany them are also attached to the train. Another very important feature is that the cars are generally well lighted with gas. The Americans took the lead in the adoption of continuous brakes, having had the Westinghouse system in operation some time prior to its introduction into England.

The American ticket system is remarkable for its elasticity as compared with the cumbrous English plan. There is no attempt to enforce such a frivolous condition as "this ticket is not transferable." In England there seems considerable suspicion on the part of the companies that passengers will study to defraud. In America you can buy tickets at the chief hotels and other appointed places. You can buy it when you please, use it when you please, and break your journey when you please, without having to forfeit the ticket and pay again for the remaining part of your trip. The ticket is divided into coupons. If you wish to stop at any particular place the only thing to do is to give notice to the guard, who arranges for the ticket to be divided so as to represent

the several stages of the journey. A liberal arrangement is in existence with regard to season tickets, which the following—an extract from a guide to the Chicago and North Western Railway—will serve to illustrate:—

Miles.	Between Chicago and	Single ticket.	10 rides ticket, unlimited.	30 rides family ticket, good for four months.	100 rides individual ticket.
		s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
5·3	Belle Plaine	0 10	5 10	13 4	30 0
5·8	Ravenswood	0 10½	6 5½	14 7	30 0
6·7	Summerdale	1 0½	7 7	16 8	30 0
7·7	Rose Hill	1 1½	8 6½	19 2	38 9

It will be seen that the above-named single fares average about twopence per mile, but there is no general uniformity, and, speaking broadly, the charges vary from two cents (say one penny) to three, and in some cases four or five, cents per mile. For instance, the "ticket fare" from New York to Albany (143 miles) is—or was in 1876—three dollars ten cents, equal to about twelve shillings and elevenpence, whilst from St. Louis to Springfield (241 miles) the fare is eleven dollars eighty-five cents, equal to about forty-nine shillings and fourpence. As there are not the same divisions of classes it is difficult to show a comparison between passenger fares in England and in America.

Ministers of religion are looked upon with favour by the American railway authorities, the fares to them

being in some instances less than to other passengers. In some cases a reduction of 25 per cent. is made. It is said that on some railways these gentlemen, especially bishops, are conveyed free. At a meeting held at Chicago in 1877 it was decided by the Michigan Passenger and Ticket Agents' Association to issue tickets to "ministers of the Gospel at half price."

In an early number of the *Railway News* for 1878 the following hint is given to those who are about to cross America:—The experienced traveller does not rush to the ticket office of a railway and buy a ticket for San Francisco, but he walks into town "to scare up a scalper," to find a ticket-broker, from whom he buys a ticket for ten dollars less than he would have to pay at the ticket office of the Union Pacific. A beautiful system of charges is in use by the great overland railway; the plan of charging so much more for local than through travel enables a class of men, the "scalpers," to live between the public and the railroad. Suppose a man wishes to reach Cheyenne from New York. If he bought a ticket simply to that place, he would find the amount charged from Omaha to Cheyenne a fearful one, so he buys a ticket clear through to San Francisco, and arriving at Cheyenne, sells what is left of it to a "scalper" for a price which leaves him perhaps fifteen dollars better off than if he had purchased merely to Cheyenne. Then comes another traveller, number two, and wants to get from Cheyenne to San Francisco. The company would charge him the same price as if he started from Omaha, 516 miles east; but he buys the ticket

sold by the man from New York, and saves ten dollars, and of course the broker makes his little commission as well. The *Engineer* of March 15, 1878, in commenting upon this system, points out that there is something of the same kind in this country:—"If you want to go from Chester to Holyhead, buy a ticket for Dublin, and so save some shillings. If you wish to go from Holyhead to Liverpool, get an obliging friend in Dublin to purchase a ticket and send it to you by post. The further you go the less you pay." These are two examples of many other similar anomalies.

The time tables have their peculiarities, and, like our "Bradshaw," are not as easy as A B C to the uninitiated; but a very good plan is adopted in giving the times of the trains, which may be noticed. In many cases the list of stations is inserted in the centre of a page, and the times of departure and arrival put on either side. That is to say, on the left-hand side, beginning at the top, the time of the outward journey is described; then, on the right-hand side of the page, beginning at the bottom, the time of the return journey is described. It could not be expected that our American cousins should miss so good an opportunity as the time tables afford for advertisement enterprise. Here is a sample:—"By the way. Look down the Great Union Depôt there, and see those shining coaches. What do those gilt letters on their side read? They read Missouri and Texas Railway. Look at that 'Iron Horse' shining as a piece of gold, trembling and impatient to start with its long train

of bright coaches, filled with emigrants for Kansas and Texas. The conductor has already given the signal 'all aboard.' What's he saying to the engineer? He says, in the words of the poet—

> 'Pull out, my gallant engineer;
> Take aim along the smooth Air Line;
> The way is clear, the far is near
> Two hundred miles, and then we dine
> At Sedalia, Mo.'"

The average speed of the trains is not equal to that in England; many of the lines are not constructed for such fast running; but then there are the "Lightning expresses," and trains often run very long distances without stopping. For example, in September, 1876, express trains made but three stoppages between Pittsburg and New York (444 miles), running continuous respectively of 117, 132, 105, and 90 miles, taking up water from track tanks *en route*, accomplishing the whole journey in about thirteen hours. Then the journey from New York to Boston (234 miles) may be performed in eight hours, New York to Niagara (444 miles) in sixteen hours, by the Erie Railway. Of course the big, or rather the biggest, railway journey in the world is the trip right across America, from New York to San Francisco, the distance about 3400 miles, and may be got over in eight days.

With regard to goods rates, the charges are in some cases made at per truck, and sometimes at a rate according to mileage at per 100 lbs. For instance, the American Express Company, New York, charged in April, 1876, one dollar per 100 lbs. for any distance

from 126 to 150 miles. But specially low rates are arranged for grain, etc. An illustration of this may be gathered from the fact that it was reported from St. Louis, on March 5, 1878, by telegraph to England that the lowest rate on record had been given for shipment of grain from New York, at 0·188 cent per ton per mile.

For the year ending October, 1877, 926 accidents are reported to have taken place, 300 persons having been killed and 1227 injured.

Our Transatlantic friends have taken a leaf out of our book with regard to railway supervision. In 1877 a bill was introduced into the legislature for the appointment of three Railroad Commissioners, but was defeated. In the present year (1878) it is again brought forward, the object being to give to the members of the Commission a general supervision of all railroads, the power to examine the affairs of any company, to direct the carrying out of improvements and repairs, and organize some uniform system of accounts, etc., etc.

Our American cousins are already thinking how the wants of coming ages are to be supplied. For example, as a railroad for the future, a scheme was issued not long ago—perhaps somewhat visionary—for a big line from the Atlantic to the West, to be built with a gauge of *thirty* feet. The engines are to be constructed so that, by a slight transposition of the machinery, they become steamboats. The inventor expects to attain a speed of one hundred and twenty-five miles per hour on land, and twenty-five miles per hour in water!

According to a report prepared by Captain Tyler, and presented to both Houses of Parliament, the total length of railways open for traffic in the Dominion of Canada on the 30th of June, 1875, was 4443 miles, distributed with regard to gauges as follows:—

	Miles.
With a gauge of 5 ft. 6 in.	664
„ 4 ft. 8½ in.	3211
„ 3 ft. 6 in.	568
Total . .	4443

On the same date as above mentioned the Dominion Government had expended for railway purposes £12,568,942, the provincial governments £1,726,619, and the municipalities £1,979,299.

One of the grandest works in connection with railway engineering is the *Victoria Bridge, over the St. Lawrence, at Montreal.* In connection with this great undertaking Mr. Robert Stephenson was engaged. The contractors were Messrs. Jackson, Peto, Brassey, and Betts; the total amount of the contract was £1,400,000. The length of the bridge is 6650 feet. There are twenty-four piers of massive stonework, comprising, with the approaches, about 2,713,000 cubic feet of masonry. The superstructure is an iron tube, through which the train runs, the total weight of the tube (in 10,309 separate pieces) being 9044 tons, and the whole of this part of the material was prepared in England, at Birkenhead. The process of construction occupied six years, 3040 men having been employed, and the bridge was inaugurated by the Prince of Wales, August 25, 1860.

Railway enterprise is fast extending over other British dominions. The following is an extract from the report of Captain Tyler, dated September 8, 1876, showing the approximate total mileage in the British Empire, December 31, 1875:—

	Miles.	Miles.
United Kingdom		16,658
British Possessions:—		
Australia—New South Wales	437	
Queensland	263	
South Australia	258	
Victoria	618	
British Guiana	21	
Cape of Good Hope	149	
Ceylon	91½	
Dominion of Canada	4443	
India	6461	
Jamaica	25½	
Mauritius	66	
Natal	5½	
New Zealand	542	
Tasmania	167	
Total in British Possessions		13,547½
„ „ Empire		30,205½

In the development of the railways of the world there is a large field for judicious enterprise. In all parts of the world iron highways are coming to be more and more recognized as harbingers of civilization and commercial prosperity. In the United States many new lines are projected, and in Australia, South America, Asia, and Africa there is need for much more railway accommodation. Professor Bodio, of the Italian Government Statistical Office, has published a work giving an estimate of the general status of

the world's railroads. It is pointed out that in 1850 the world possessed only 18,630 miles of railway; that in 1875, after the development of a quarter of a century, this mileage had been multiplied by ten; and that during this period of twenty-five years there had been an expenditure on lines constructed of about £2,700,000,000 sterling, or say roughly, enough to pay off the national debts of the United Kingdom, France, the United States, and Russia.

THE END.

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